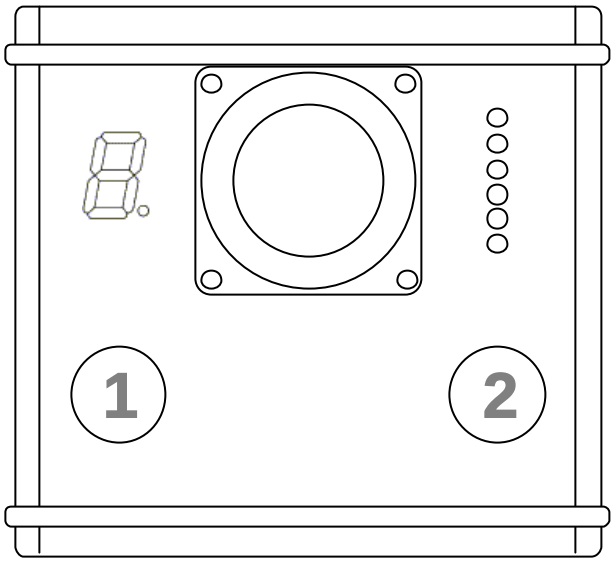
User Manual

revision e
ucm 2

Wheelchair Joystick for the DX BUS System
with
built-in Wireless Computer mouse
and
optional built-in Wireless Mobile Phone interface
and
Environmental Control-Communication Aid interface.



Important Notes:

1. Read this manual carefully before installing or operating your Genie Joystick.
2. Due to continuos product improvement Unique Perspectives reserves the right to update this Manual. This Manual supersedes all previous issues which must not continue to be used.
3. Any attempt to gain access to or in any way abuse the electronic components of the Genie Joystick renders the manufacturer's warranty void and the Manufacturer free from liability.
4. Parts of this document have been reproduced with kind permission of Controls Dynamics Ltd. from their 'DX Dolphin Remote Installation Manual' dated Jan 1999.

Contents

This manual is divided into two sections. Section 1 is aimed for Users, Carers, Occupational Therapists and Technicians to quickly and easily understand the basic requirements for operating the Genie Joystick control safely. Section 2 contains further information for the Technician and Occupational Therapist to understand the installation, adjustment and fault finding procedures.

In both sections the Maintenance and Safety and Misuse chapters are presented. This information in particular must be read and understood before operating the Genie Joystick.

Section 1 – User Operation

1	**Introduction**	6
2	**Features**	8
3	**Operation**	12
	Turning on the Genie Joystick	12
	Driving the chair	12
	Selecting another operation mode	12
	Computer Access mode	14
	External Access mode	15
	Mobile Phone mode	16
	Seat Function mode	17
	Lights mode	17
	Change Drive Profile mode	18
	Power Off mode	18
	Making an Alarm	18
4	**TypeMatic On-Screen Keyboard software**	20
	Installing the software	20
	Running the program	20
	Editing the layout	22
5	**Batteries & Charging**	28
	Battery type	28
	Battery charging	28
	Battery gauge	28
	Battery saver	28
6	**Maintenance**	28

7 **Safety and Misuse Warnings** 30
Know the Risks and Limitations 31

Section 2 – Installation, Adjustment & Fault Finding

1 **Related Documentation** 33

2 **Specifications** 34
Genie Joystick 34
Mouse Emulator 36

3 **Installation and Testing** 37
Mounting 37
Connections 37
Switch inputs 38
Switch outputs & interfacing to other devices 39
Interfacing to a USB port 41
DX programming socket 43
DX BUS cabling 43
USB Cable 44
Testing 45
Power Up Response 45
Genie Joystick Check sequence 45
Seat Function Check sequence 46
Lights check sequence 46
Drive Profile check sequence 46
Power Off check sequence 46
External Access check sequence 47
Computer Access check sequence 47
Setting the Mouse Speed 48

4 **Programming the Genie Joystick** 50
Programmable Parameters 50
Selecting program mode 57
LED meaning in program mode 57
Parameter Adjustment Table – Page One 59
Parameter Adjustment Table – Page Two 60
Parameter Adjustment Table – Page Three 61
Creating Your own Set of Operation Modes 62
Resetting Parameters to Factory Values 62

5 **Programming the DX System** 64
Downloading the correct DX wizard file 64

	Programming Methods & Tools	67
	Dynamic Wizard	67
	Hand Held Programmer (HHP)	67
	Auto download	68
	DX System Parameters	69
	Drive program parameters	70
	Keypad & Speed Pot Parameters	71
	Joystick Parameters	72
	Actuator Parameters	73
	Lighting Parameters	75
6	**Battery Warnings, Diagnostics and Fault Finding**	69
	Battery warning conditions	69
	Battery high warning condition	69
	Battery Low warning condition	69
	Low capacity warning condition	69
	Diagnostics and Fault Finding	70
	Flash Code	70
	Limp Mode	73
7	**Maintenance**	74
8	**Safety and Misuse Warnings**	75
	Know the Risks and Limitations	76
9	**EC Declaration Of Conformity**	77
10	**Warranty**	79
11	**Sales and Service Information**	80
12	**Genie Joystick Parameter Quick Reference**	81
	History of improvements and changes	82

SECTION ONE

USER OPERATION

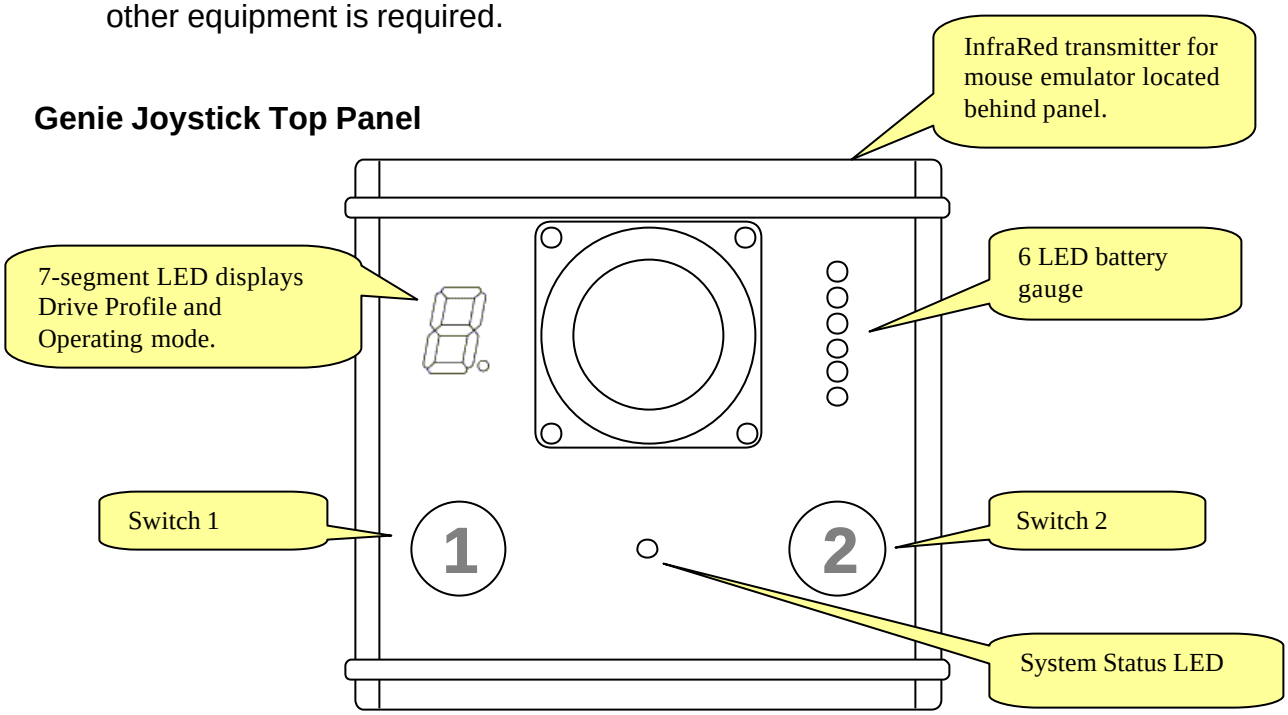
1 Introduction

With the Genie joystick you can control your wheelchair, access a computer, operate environmental and communication aid devices all from the same joystick.

Just one switch or a flick of the joystick is all that is required to switch modes from, for example, driving the wheelchair to moving the computer mouse and back again. It is simple to use with no complex menus or displays.

The Genie joystick can be fitted to any wheelchair that is fitted with a DX power module. It is a master remote and therefore replaces the existing joystick. No other equipment is required.

Genie Joystick Top Panel



On the top panel of the joystick are two switches and the joystick element itself. Switch 1 is used to turn on the chair and select one of six operating modes; Driving, Speed selection, Seat function, Lights, Computer Mouse, and External device. Depending on the needs and ability of the user some or all of these modes can be enabled. Switch 2 can be used to turn off the chair or operate the right click, double click, left drag or mouse speed of the computer mouse.

If the user is unable to operate the switches on the unit itself external switches can be used. If the user is unable to use switches at all a special “joystick flick” mode is available whereby a flick of the joystick takes the place of switch selections.

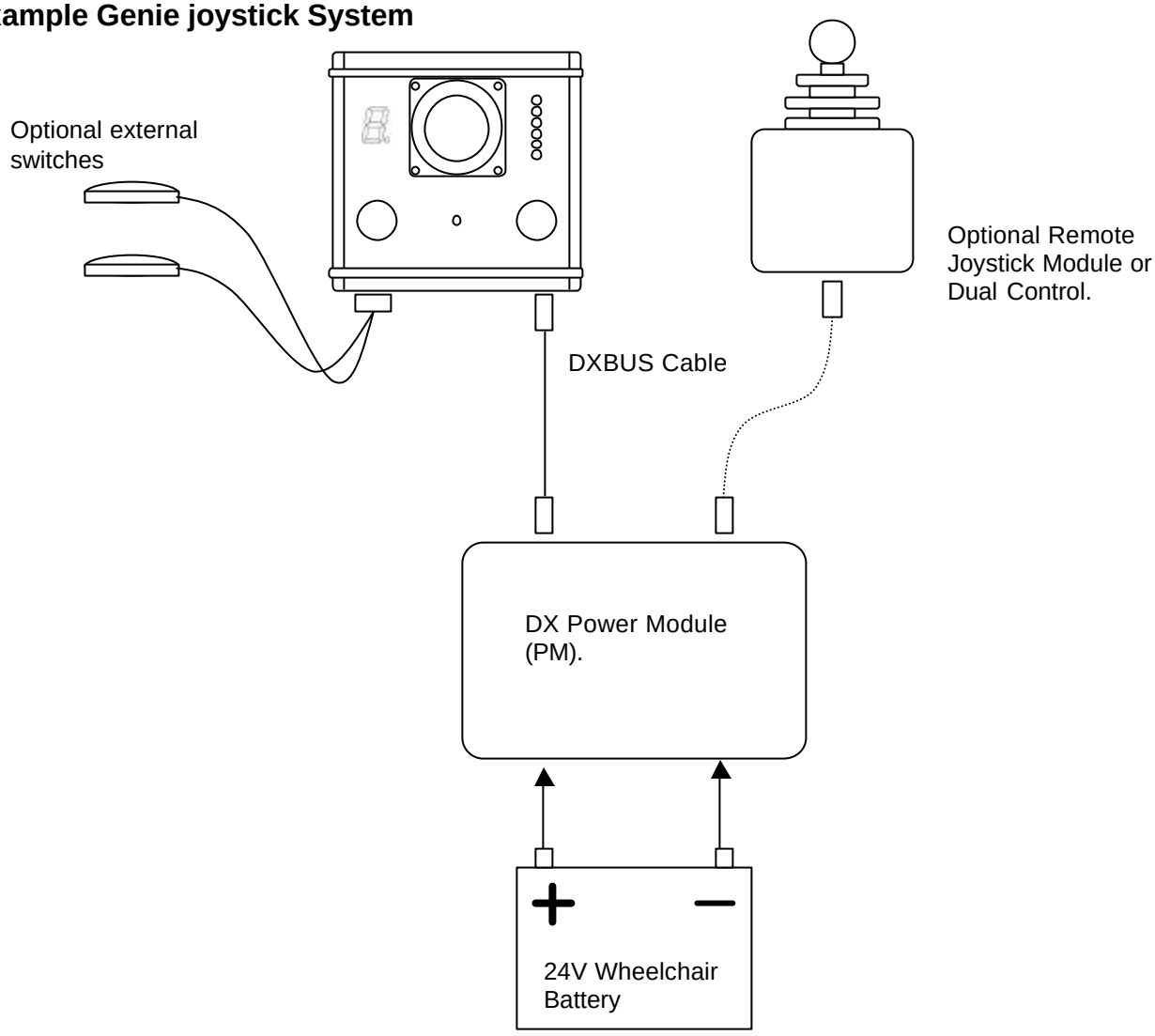
At the left hand side of the joystick element a 7 segment display indicates the operating mode. At the right hand side of the joystick element is the battery gauge. The DX system status LED is located in the centre of the unit between Switch 1 and 2.

The Genie joystick has a standard DXBUS connector so that it may be connected to the DX power module. The Genie joystick can be used to control any powered wheelchair which is fitted with a DX Power Module.

The Genie joystick and the associated DX Power Module are fully programmable to cater for a wide range of chair types and user needs. Correct installation and programming are essential to ensure optimum performance and safety.

The operation mode of the Genie joystick can be programmed without the need of a DX Hand Held Programmer or a Dynamic Wizard. Programming of the Genie joystick is performed on the device itself.

Example Genie joystick System



2 Features

Gearless/Brushless Motor Support

NEW TO REV E

The Genie joystick is now fitted with a DX UCM version 2. This implies that it is compatible with all the latest DX Power Module variants including the DXGB – for chairs with gearless / brushless motors.

Built-In Wireless Computer Mouse.

The Genie joystick has a wireless computer mouse built-in. This is an infra-red link to the Genie mouse emulator which connects into the USB port of your computer. When computer access is selected the joystick on the Genie is used to move the mouse on the screen. Pressing switch 1 activates the left click, whilst pressing switch 2 activates the right click (or double click or drag lock or mouse speed). By default mouse movements are fully proportional meaning that the further away from centre the faster the mouse.

Mobile Phone Interface

The Genie joystick can be supplied with an internal bluetooth module that enables control over a SmartPhone. The joystick can be used to browse the contents of your phone's contact list, make and receive calls, and send text messages.

Alarm

The Genie joystick can be enabled to emit an audible alarm and send a text message when switch 1 is held for a defined period of time. To send a text message alarm you must have a Genie equipped with a mobile phone interface and the SmartPhone must be switched on and connected.

On-Screen Keyboard included.

The Genie mouse emulator is supplied with a free copy of TypeMatic on-screen keyboard software. This software can be used to type text into any Windows application and includes powerful word prediction and completion features.

Mode selection with just one switch

The Genie joystick accommodates people who can operate a joystick but who find it difficult to operate the buttons on a standard joystick control. With the Genie joystick just one switch or a flick of the joystick is all that is required to change operating modes.

Driving Mode

Standard wheelchair driving mode. Drive profile is displayed in the 7 segment display.

Seat function Mode

A seat symbol is displayed in the 7 segment display. Left/Right movements of the joystick selects which seat actuator to operate. Forward/Back movements of the joystick operate the chosen actuator. The 7 segment display provides feedback to the user as to which actuator is selected.

Lights Mode

A forward movement of the joystick turns on or off the side lights. A backwards movement of the joystick turns on or off the hazard lights. Left/Right movements of the joystick turn on or off the indicators (unless the hazards are on).

Computer Access

A “C” is displayed in the 7 segment display. By moving the joystick the mouse on the computer is moved about the screen. Switch 1 operates the left click. Switch 2 operates the right click, double click or drag lock or mouse speed.
To exit Computer Access mode switch 1 is held for a predefined length of time.

External Access

The Genie joystick can be connected to an environmental control or communication aid device. The joystick can then be used to make selections on the external device. For example the joystick can be used to highlight a cell on a grid of communication symbols using left/right and up/down movements. The cell can be selected by clicking switch 1.

To exit External Access mode switch 1 is held for a predefined length of time.

Direct connection to GEWA PROG III environmental control transmitter.

The Genie joystick can be interfaced to any environmental control transmitter but is designed to be specifically connected to a GEWA PROG III. In this instance the button on the PROG is highlighted using left/right and up/down movements of the joystick and selected by pressing switch 1.

USB Interface

A USB interface cable allows the Genie to be connected to the USB port of an “on-chair” computer or communication device. When external access is selected the joystick on the Genie is used to move the mouse pointer on the external device. Switch 1 operates the Left Click or Select.

Drive Profile Select

Forward/Back movements of the joystick select the desired drive profile. Alternatively the drive profile can be chosen on start up by holding down switch 1 until the drive profile number starts changing and releasing switch 1 when the desired number is displayed.

Power Off

This is a special mode that simply turns off the chair. It is for users who cannot operate a second switch.

Mode Selection methods

Several different methods of selecting the above modes are possible. Choosing the correct selection method is an important part of setting up the Genie joystick to meet the needs and abilities of the user.

"Switch Only"
By pressing and holding switch 1 the display toggles through symbols representing each mode. Release switch 1 when the desired mode is displayed.

"Switch + Joystick"
Press switch 1 to enter mode selection. The display shows a symbol representing the first mode. Pressing switch 1 again goes on to the symbol for the next mode. Deflecting the joystick forward selects the mode that is displayed.

"Joystick + Switch"
Press switch 1 to enter mode selection. The display shows a symbol representing the first mode. Deflecting the joystick forward goes onto the symbol for the next mode. Deflecting the joystick backwards goes back to the symbol for the previous mode. Pressing switch 1 selects the mode that is displayed.

"Joystick only"
A backwards flick of the joystick selects mode selection. The display shows a symbol representing the first mode. Deflecting the joystick forward goes onto the symbol for the next mode. A backwards flick of the joystick selects the mode that is displayed.

Programming button

The selection method of the Genie joystick, the number and type of operating modes and other options can be programmed without the use of a computer or other external device. The program button is located through a hole at the front of the device and pressing this sets the Genie joystick in program mode. All the options can be set by using switch 1, switch 2, the 7 segment display and the battery gauge.

RJM compatible

The Genie joystick is compatible with all DX remote joystick modules and these can be used instead of the joystick on the Genie if so required. The only restriction in this method of operation is that mouse movements are always non-proportional, i.e. a fixed speed.

Battery gauge	Battery charge level is indicated by a set of 6 LEDs. These are arranged from bottom to top as 2 red, 2 yellow, and 2 green.
System status	Faults within the DX system are indicated by flashing the system status LED located between switch 1 and 2
Programming socket HHP / Wizard socket	The standard HHP / Wizard socket for programming the DX system. Located underneath the device.
Standard DXBUS connection	For connecting the Genie joystick, with a DXBUS cable to the DX power module.
Battery charger	Due to space restrictions the battery charger socket is not located on the Genie joystick itself but on a separate DX BUS lead (DX part no: DX-ACC3).
3.5mm Switch Inputs	For people who cannot use Switch 1 and Switch 2 you can connect external switches such as TASH buddy buttons etc.
Knob Options	A number of different knob options are available including Ball, Carrot, Chin, T bar, Sponge etc.

3 Operation

Turning on the Genie joystick.

To turn on the Genie joystick press Switch 1. The 7 segment display will show a "-" symbol and after a short moment will display the current drive profile.

If you have the "Accidental_Hits" option enabled you must hold Switch1 for at least 1 second before the Genie joystick will power up properly. This avoids involuntary movements on an external switch.

For more information on Genie joystick option see Section 2 Chapter 4.

Driving the Chair.

Driving is the default operation mode. It is automatically selected when the wheelchair is turned on or when another operation mode is finished.

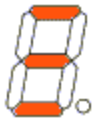
To drive the chair forward deflect the joystick forward. To drive the chair backwards deflect the joystick backwards. To drive the chair to the right deflect the joystick to the right. To drive the chair to the left deflect the joystick to the left.

Warning: If the driving performance is poor or erratic consult your service agent immediately.

Selecting another operation mode.

There are 7 other operation modes apart from driving. These are:-

Mode	Symbol
1. Computer Mouse	
2. External Access	
3. Mobile Phone	

4.	Seat Function	
5.	Lights	
6.	Change Drive Profile	
7.	Power Off	

The number of available modes and the order in which they are presented to the user can be defined. The default number of modes and order is as above.

There are 4 different methods of mode selection. Choosing the right selection method is an important part of the assessment process and will determine how successful a user will be in using the Genie joystick.

Method 1 – Switch Only

1. Press and hold Switch 1
2. The display will show the symbol representing the first mode available.
3. As long as Switch 1 is held the display will toggle through the other symbols.
4. Release Switch 1 when the desired symbol is displayed.
5. The Genie joystick enters that mode.

Method 2 – Switch + Joystick (Default method)

1. Press and release Switch 1
2. The display will show the symbol representing the first mode available.
3. Use forward and backwards deflections of the joystick to display the mode you want to enter.
4. Select and enter the mode by pressing Switch 1.

Method 3 – Joystick + Switch

1. Press and release Switch 1
2. The display will show the symbol representing the first mode available.
3. Press and release Switch 1 again to step on to the next available mode.
4. When the desired mode is displayed a forward deflection of the joystick selects and enters the mode.

Method 4 – Joystick Only

1. Make a quick backwards “flick” of the joystick.
2. The Genie enters mode selection and the display will show the symbol representing the first mode.
3. Use forward and backwards deflections of the joystick to display the mode you want to enter.
4. Make a second backwards “flick” of the joystick to enter the displayed mode.

WARNING: Once a mode is being selected or when a mode has been entered it is no longer possible to drive the wheelchair. It is extremely important, therefore, to be in a safe location before selecting or entering another operation mode. Driving is only possible again after the mode has been finished.

For all selection methods except “Joystick Only” a mode is finished by pressing Switch 1 (pressing and holding Switch 1 in computer mouse and external access modes). With a “Joystick Only” selection method a mode is finished by a backwards “flick” of the joystick.

Computer Mouse mode.

When computer mouse mode is selected the joystick controls the mouse on the computer (provided that the mouse emulator is connected and the wheelchair is within range. See page 35 for details on fitting the mouse emulator).

A forward deflection of the joystick moves the mouse pointer up the screen. A backward deflection of the joystick moves the mouse pointer down the screen. A

left deflection of the joystick moves the mouse pointer to the left and a right deflection of the joystick moves the mouse pointer to the right.

Pressing Switch 1 performs a Left Click, whilst pressing Switch 2 performs a right Click. Switch 2 can also be programmed to be either “Double Click”, “Left Drag Lock”, “Mouse Speed” or as a direct way to exit mouse mode. See page 51.

In Windows XP it is possible to change the speed of the mouse pointer. See page 47.

To exit computer mouse mode press and hold Switch 1 until the Genie joystick emits a beep. The length of time that the switch must be held can be adjusted by the “Exit_Time” parameter.

For people who are unable to use the computer keyboard an on-screen keyboard software entitled “TypeMatic” is provided. This allows a user to select keys and words from a grid on the screen and type into any Windows program. The software is discussed in the next chapter.

Joystick only mode
If the selection method is set to “Joystick Only” the computer mouse mode operates in a different way.

A left “flick” of the joystick performs a left click. A right “flick” of the joystick performs a right click. A forward “flick” of the joystick performs a “double left click” and a backwards “flick” of the joystick exits computer mouse mode.

Note that in this mode the mouse will not begin to move until after the “flick” time, which is set by the “Time_Base” parameter.

External Access mode.

When external access mode is selected the joystick controls the external device (provided that the external device has been connected to the Genie joystick with the correct cable. See page 38 for details on interfacing to external devices.

Devices with a 5 switch input
These devices can be controlled in exactly the same way as if a non-proportional joystick, such as a TASH mini joystick or Star switch, were directly connected to it. The Genie joystick takes the place of such a switch.

The genie joystick expects that the device presents a grid of options to the user and that forward/back and left/right deflections will highlight an individual cell in the grid whilst pressing Switch 1 will select and activate the highlighted cell. The grid might be a set of communication symbols on a communication aid (for

example a Cameleon CV) or the buttons on an environmental control transmitter (for example the GEWA prog).

Devices with 2x3.5mm switch inputs
These devices would normally be controlled by 2 switches and would implement some sort of scanning mechanism. One switch is used to scan the cells of a grid whilst the other is used to activate the highlighted cell.

With the Genie joystick the switches are replaced by deflections of the joystick. A forward deflection is used to scan the cells of the grid whilst a backwards deflection is used to activate the highlighted cell. Again the grid could be a set of communication symbols on a communication aid (a Words+ MessageMate for example) or the buttons of an environmental control transmitter (a TASH Relax for example).

Controlling 2 external devices
If 2 external devices are connected they must both be controlled as described above except that Left/Right deflections of the joystick are used for the second device.

To exit external access mode press and hold Switch 1 until the Genie joystick emits a beep. The length of time that the switch must be held can be adjusted by the “Exit_Time” parameter.

Joystick Only selection mode
When the selection method is set to “Joystick Only”…
- a forward “flick” of the joystick is the equivalent of pressing Switch 1.
- exit external access mode with a backward “flick” of the joystick.

Mobile Phone mode (optional)

When mobile phone mode is selected the joystick controls a Smart Phone. The phone must be Bluetooth equipped and running Windows Mobile 2003 operating system. Joystick deflections are used to navigate the menus on the phone and make and receive telephone calls. On screen keyboard software running on the phone allows you to compose and send text messages. For further details on using your Genie joystick to control a Smart Phone and how to install the software see the “ClickToPhone” user manual.

To exit mobile phone mode press and hold Switch 1 until the Genie joystick emits a beep. The length of time that the switch must be held can be adjusted by the “Exit_Time” parameter.

Joystick Only selection mode

When the selection method is set to “Joystick Only”…

- a forward “flick” of the joystick is the equivalent of pressing Switch 1.
- exit mobile phone mode with a backward “flick” of the joystick.

Seat Function mode.

When seat function mode is selected the joystick is used to select, extend and retract actuators (so long as they are fitted to the wheelchair).

Left/Right deflections of the joystick select 1 of the 5 actuators to control. A flashing segment in the display indicates which actuator is currently selected as the table below illustrates.

Back Rest	Back Tilt	Seat Height	Foot Rest L	Foot Rest R
Actuator 1	Actuator 2	Actuator 5	Actuator 3	Actuator 4

Forward/Back deflections of the joystick are used to extend or retract the selected actuator.

NOTE: It is possible to edit the actuator list so that only those actuators that are fitted on the chair are displayed in seat function mode. See Section 2 Chapter 4.

To exit seat function mode press and release Switch 1.

When the selection method is set to “Joystick Only” exit seat function mode with a backward “flick” of the joystick.

Lights mode.

When lights mode is selected the joystick is used to turn on and off the wheelchair lights.

- A forward deflection of the joystick turns on/off the sidelights.
- A backwards deflection of the joystick turns on/off the hazard lights.
- Left/Right deflections of the joystick turn on/off the indicators.

The seven segment display indicates the status of the wheelchair lights according to the following table:-

Side Lights	Left Indicator	Right Indicator	Hazards

To exit lights mode press and release Switch 1.

When the selection method is set to “Joystick Only” exit lights mode with a backward “flick” of the joystick.

Change Drive Profile mode.

When Change Drive Profile mode is selected the joystick is used to select the drive profile (sometimes referred to as the speed). The seven segment display is used to indicate the selected drive profile number.

Use forward/back deflections of the joystick to select the desired drive profile number. A forward deflection increases the drive profile number while a backwards deflection decreases the drive profile number.

To exit change drive profile mode press and release Switch 1.

When the selection method is set to “Joystick Only” exit change drive profile mode with a backward “flick” of the joystick.

Note that the number of Drive profiles that can be selected is limited by the Max_Profile_Number. For details on changing this and other options see Section 2 Chapter 4.

Power Off mode.

When power off mode is selected the Genie joystick turns off.

You can also turn off the wheelchair from any mode with the exception of computer access mode by pressing and releasing Switch 2.

Making an Alarm.

In any mode the user can generate an alarm by pressing and holding Switch 1 until an ‘A’ is displayed in the 7 segment display and the Genie starts beeping rapidly. There are 2 types of alarm.

1- Audible alarm
2- Audible alarm + Text Message Alarm

The type of alarm is set by the “Alarm” parameter.

When the second type of alarm is chosen and the Genie is equipped with a BlueTooth interface and the SmartPhone is switched on and connected the Genie instructs the SmartPhone to send a pre-written text message is sent to a specific number. For more information see the “ClickToPhone” user manual.

The length of time that the switch must be held to generate an alarm can be adjusted by the “Exit_Time” parameter.

For details on changing this and other options see Section 2 Chapter 4.

4 Type-Matic Software

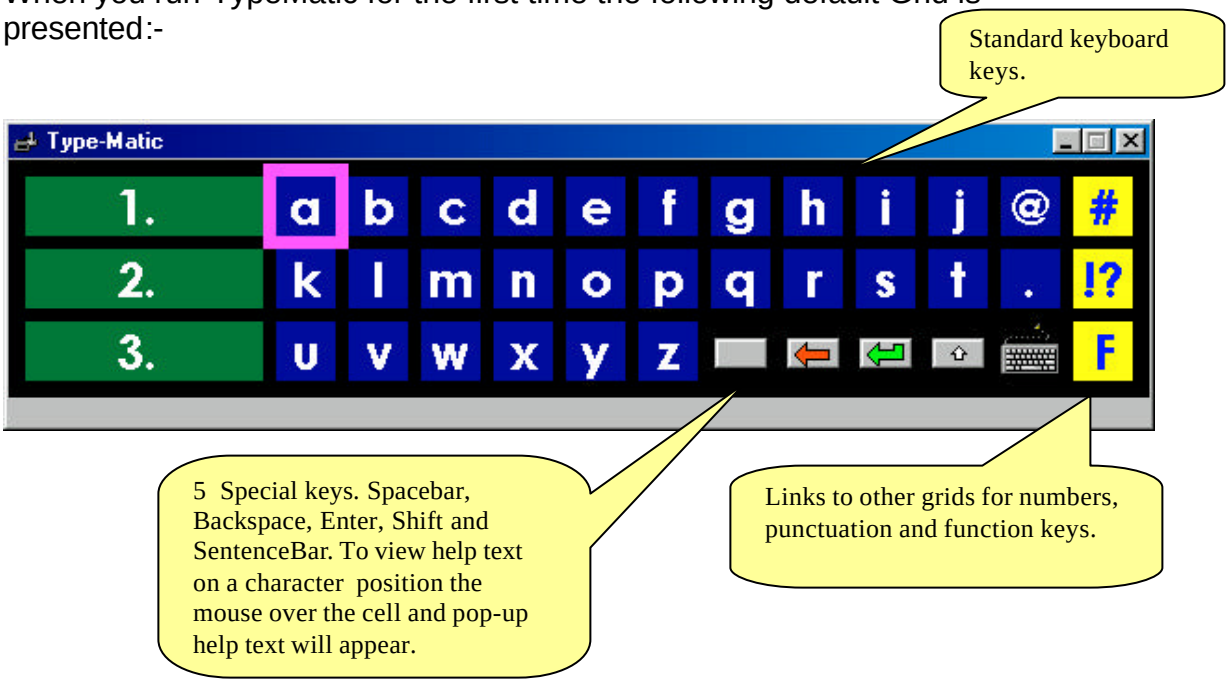
Installing the Software

1. Insert the CDROM into your CD-ROM drive
2. If the installation program does not “autorun” then choose ‘Run’ from the Windows Start menu and continue with step 3, otherwise jump to step 5.
3. Type d:\setup.exe. (if your CD-ROM drive is not drive D, type the appropriate letter instead.)
4. Choose OK.
5. Follow the instructions on the screen.

Running the Program

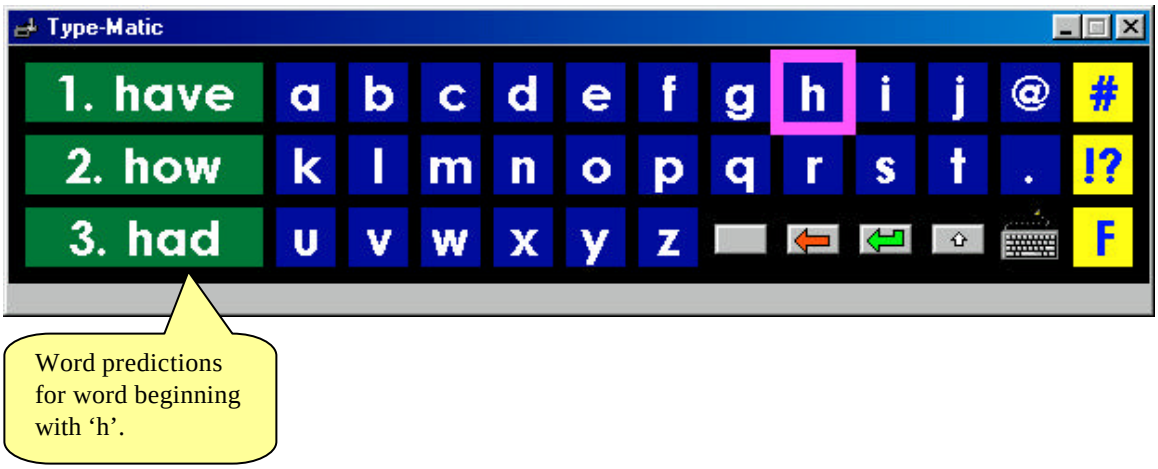
Run TypeMatic by choosing Programs from the Start menu and clicking on the TypeMatic icon.

When you run TypeMatic for the first time the following default Grid is presented:-


Standard keyboard keys.
Type-Matic
1. a b c d e f g h i j @ #
2. k l m n o p q r s t . !?
3. u v w x y z F
5 Special keys. Spacebar, Backspace, Enter, Shift and SentenceBar. To view help text on a character position the mouse over the cell and pop-up help text will appear.
Links to other grids for numbers, punctuation and function keys.

Now launch a word processing program such as WordPad and open a new document. To type, position the mouse pointer over the desired character and click. The character should appear in your new document.

Typematic's word prediction displays a list of words beginning with the characters you have typed. In the example below the 'h' character has been typed.



To choose one of the predictions simply click on it and watch it appear in your word document.

As you type TypeMatic will remember any new words you create.

When you type a space, TypeMatic tries to predict the next word in the sentence you are typing. Because this prediction is based on previous sentences you have written this prediction will not begin right away. The more you repeat certain sentences the more TypeMatic will learn to predict the next word in the sentence.

TypeMatic's abbreviation file, 'shorthand.txt', contains a list of abbreviations. Initially it contains only one abbreviation, 'hau'. Type 'hau', then enter and watch 'How are you' appear in your document. You can edit shorthand.txt located in the application directory and create your own abbreviations. Be careful to only use character groupings which do not constitute a word in themselves.

To quit the program right click on the window and choose 'Exit' from the Pop-Up menu. If the 'UpdateFile' property is set to 'Prompt' you will be asked whether or not you want to save any new words you have written. Choose Yes or No as required.

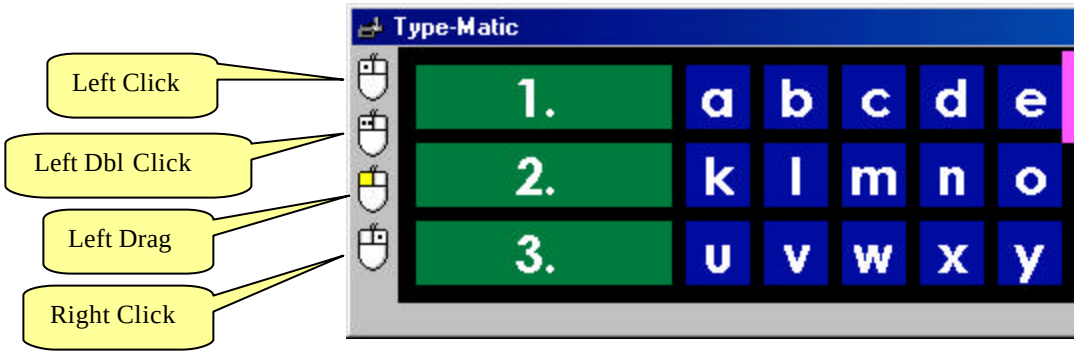
Setting the Dwell time

For users who are unable to use Left or Right click buttons a Dwell feature is provided whereby a cell is automatically selected by keeping the mouse pointer

still for a certain length of time over the desired cell. This time is called the dwell time and can be set between 1 and 5 seconds. Right click on any cell in the grid and select Dwell time from the PopUp menu.

Now when you position the mouse pointer over a cell and keep it still for dwell time the contents of the cell will be typed into the active application, i.e. the cell is automatically selected without having to make a click.

Furthermore when you select a Dwell time a set of buttons representing Left click, Left Drag and Right click appear in the left hand side of the TypeMatic window. These allow you to generate mouse clicks in other applications by keeping the mouse pointer still for the dwell time over the control you want to click.



First select the mouse click you want to generate by keeping the mouse pointer still over the button representing the desired mouse click. After the button is selected (down position) move the mouse pointer over the control you want to click in the other application and keep it still for the dwell time.

Using the Sentence Bar

The Sentence Bar feature allows a user you to pre-prepare a sentence or word before sending it to the active application. To activate the sentence bar Right Click on any cell in the grid and click on Sentence Bar in the pop-up menu.

The Sentence bar will appear at the top of the TypeMatic window.

When you have finished typing your word or sentence click on the Enter cell to send the text in the sentence bar to the active application.

To de-activate the sentence bar Right Click on any cell in the Grid and click on Sentence Bar in the pop-up menu.

The Sentence bar can also be activated from a cell in the Grid identified by the following icon:

You would use this method if a person is unable to perform a Right Click.

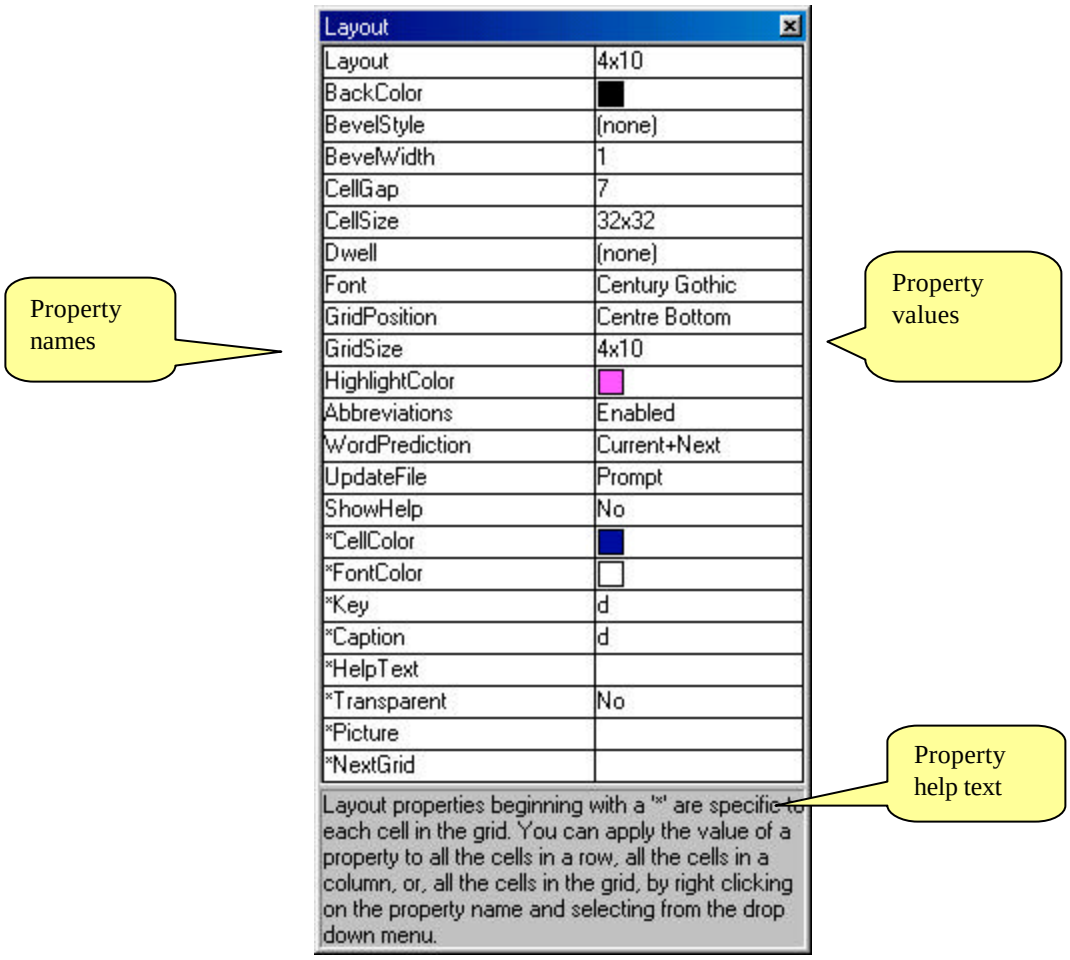
Note: If this cell does not appear in the Grid you are using, but you require it, then you must edit the Grid and create a cell with the “Key” property set to “SENTENCE_BAR”. This is one of the special keys selected from the drop down list. See the following page on how to edit the cells in the Grid.

In Windows 2000 and Windows XP it is not possible to input text letter by letter into certain text boxes. Examples of these text boxes include the FileName text box in WordPad® and the URL text box in Internet Explorer®. You will know when this happens because as you type each letter it overwrites any text that was previously in the text box. The result is that you can only type one letter. To overcome this limitation use the Sentence Bar.

Note: When you close TypeMatic it will remember if the Sentence Bar was activated or not. If you always use the Sentence Bar you will only have to activate it once.

Editing the Grid

To edit a Grid right click on any cell and choose ‘Edit Grid…’ from the pop-up menu. The Layout properties window is presented.



The left hand column displays the property names. The right hand column displays the property values. The panel at the bottom of the window displays the properties help text.

To view the help text of a property click on the property name. The help text for the property appears in the panel at the bottom of the window.

When you click on the property name a control appears in the property value field. The type of control depends on the property type, for example a drop down list for Grid Size, a file open button for Picture, a text entry control for Caption. Use the control to edit the property value.

Properties

Layout	You can have any number of grids with TypeMatic. Click the FileSave button to save the current Grid or click the FileOpen button to open another.
BackColor	The color of the background.
BevelStyle	The bevel style of cells in the grid. Can be set to none, Inset or Raised.
BevelWidth	The width of a cell bevel. Can be set between 1 and 8.
CellGap	The gap between cells. Can be set between 0 and 8.
CellSize	The size of the cells in the grid. Can be set to 16x16, 32x32 or 64x64.
Font	The font used throughout the grid.
GridPosition	The start-up position of the grid on the screen.
GridSize	The size of the grid. The smallest size is 4x4 cells, the largest is 8x10 cells.
HighlightColor	The color used to highlight cells.
Abbreviations	Specifies whether or not the abbreviation feature is enabled. The abbreviation list is stored in the file 'shorthand.txt' in the application directory. You can edit it to add more abbreviations using notepad.
WordPrediction	The type of word prediction used. Can be set to none, current word or current plus next word. When set to none the word prediction column is hidden.
UpdateFile	Specifies how the word prediction file 'typematic.dic' is updated with the words written and chosen by a user. Can be set to Always, Never or Prompt. If set to prompt the user is asked whether or not they wish to save any new words when they quit the program.
*CellColor	The color of a cell. If the cell is transparent this property has no effect.
*FontColor	The color of the font in the cell.
*Key	The key(s) to be pressed (simulated) when the cell is selected. Use '+' for SHIFT, '%' for ALT and '^' for CTRL. These special keys have a toggle function. To specify an actual plus sign use '{+}'. For '^' use '{^}', for '%' use '{%}'. You can select other special keys from the listbox. Note than when you select a key the text is automatically assigned to the caption. You can have the caption text different from the key text but always set the key text first, then the caption text.
*Caption	The text that appears in the cell.
*HelpText	The help text for the cell which will be displayed when the mouse is paused over the cell.

*Transparent	Specifies whether or not a cell is transparent. A transparent cell takes on the color of the background when not selected and the color of the highlight when selected.
*Picture	Each cell can contain a picture (bitmap or icon only).
*NextGrid	You can link a cell to another grid by specifying the file here. In this way you can have links to grids of numbers and punctuation. Always remember to have a link back to the main grid!

Editing the properties of a cell

Properties beginning with an '*' are specific to an individual cell and only effect the selected cell. To edit the property of a cell, for example it's key, click on the cell in the main window, then click the property name called 'key' and edit it's content.

A special case is the column of word predictions. These cells have the same properties. In other-words if you set the cell color for a word prediction cell it effects all word prediction cells.

Editing the 'general' properties of the Grid

Properties which do not begin with a '*' effect the general look and functionality of the Grid. For example the GridSize is a general property.

Saving and Opening layout files

When you have finished editing properties you can save the Grid as a file on your hard disk. The files are called 'tlf' files: 'Typematic Layout File'. To save a Grid click on the first property called 'layout'. A File Open and File Save button appear in the property value field. Click the File Save button to save your newly edited Grid.

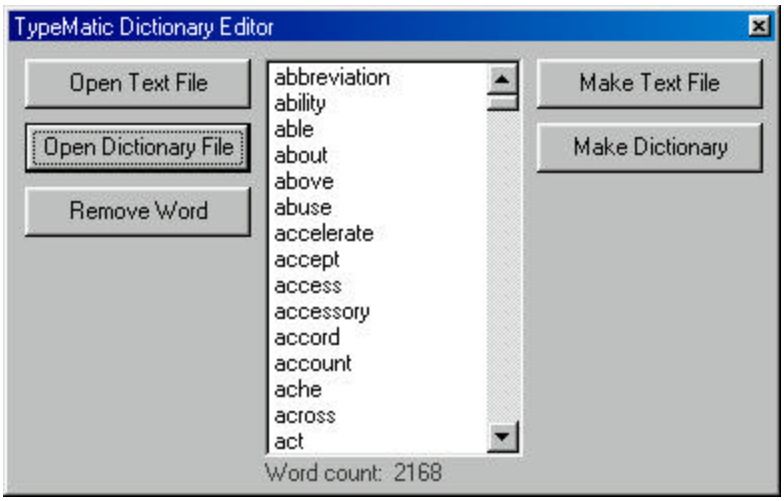
Typematic comes with a selection of files to illustrate different Grids. These files are called small.tlf, standard.tlf and colorful.tlf and are located in the application directory. To load a Grid click on the first property called 'layout' then click on the File Open button, locate the desired file and choose OK.

Note: When you close the Layout properties window TypeMatic will remember which Grid is in use and will load this Grid the next time it is run.

You can also open grids directly from the main TypeMatic window by right clicking on any cell and choosing Open Grid from the popup menu.

Editing the Dictionary

Included with the TypeMatic installation is a utility program called MakeDictionary.exe which can be found in the program directory. This program allows you to edit the dictionary or create a new one from a text file.



Tip: If you wish to merge a text file with the existing dictionary, for example to add a vocabulary set to a user's dictionary, first open the dictionary file and then open the text file. You will be prompted as to whether you wish to discard the exiting words. Choose No. Once the new words are loaded choose Make Dictionary.

5 Batteries and Charging

Battery Type

The DX System is designed to perform optimally with either Lead-Acid or Gel Cell 24 V deep cycle batteries, rated at 20 – 120 Amp hours. The maximum average discharge rate must not exceed half the rated capacity, in Amp hours.

Battery Charging

Due to space restrictions the battery charger socket is not located on the Genie joystick itself but on a separate DX BUS lead (DX part no: DX-ACC3)..

Progress of the charge can be monitored by turning on the Genie Joystick and watching the battery gauge.

Battery Gauge

The battery gauge provides true, useable battery capacity information. A full battery with at least 85% of rated capacity, is represented by all 6 LEDs lit. Some new batteries can start with as little as 80% capacity, developing higher capacity in their early life (sometimes up to 110%), before slowly deteriorating over their rated life.

As the battery voltage drops, the number of LEDs lit reduces from top to bottom. When only the red LEDs are lit, the available battery capacity is typically less than 10%. At this level and below, the Battery Gauge flashes to alert the user that the wheelchair is running on reserve capacity. The battery capacity will reduce more rapidly in the reverse capacity range.

Battery Saver

The Battery Saver is a feature programmed into the DX Remote. When the battery capacity is in the reserve range (below 21V), the wheelchair performance is reduced. This is to preserve the life of the battery by encouraging the user to recharge the battery before it becomes harmfully flat.

Operating the wheelchair with more than two LEDs of the battery gauge lit will generally give normal wheelchair performance. This is provided that the battery size and the PM program settings are matched to the wheelchair.

6 Maintenance

1. The Genie Joystick system should be regularly checked for integrity. Loose, damaged or corroded connectors or terminals, or damaged cabling should be reported to your Service Centre and be replaced immediately.

2. The cabling of Genie Joystick System including Switch cables, DXBUS cable, Charger cable and Battery cables, should be regularly checked for integrity. They should never be loose. Cables should be neatly attached to the wheelchair frame and mounts so that no possibility exists for a cable to become snagged on the moving parts of the wheelchair itself, the person sitting in the wheelchair, and/or items external to the wheelchair such as door handles etc.

3. All switches connected to the Genie Joystick should be regularly tested to ensure that they function correctly.

4. During storage and transport of your wheelchair ensure that there is no possibility that switch 1 can inadvertently by pressed thereby causing the chair to turn on and possible enter a drive state. Always disengage the motor gears and disconnect any external switches.

5. Under no condition should a latching switch be connected to the Genie Joystick. Only connect non-latching switches.

6. The Genie Joystick components and other wheelchair parts should be kept free of dust, dirt and liquids. If necessary wipe with a cloth dampened with warm water or alcohol. **Do not** use solvents or abrasive cleaners.

7. Where any doubt exists, consult your nearest Service Centre or Agent.

8. There are no user-serviceable parts within the Genie Joystick. Do not attempt to open the case.

9. In accordance with the requirements of CE marking of this device and the Company's policy, it is requested that re-occurring faults or defects are reported back to Unique Perspectives Ltd.

Warning !! If the Genie Joystick is damaged in any way, or if internal damage may have occurred (for example by being dropped), have it checked by qualified personnel before operating.

7 Safety and Misuse Warnings

Do not install, maintain or operate this equipment without reading, understanding and following the proper instructions and manuals, otherwise injury or damage may result.

The completed installation must be thoroughly checked, and all programmable options must be correctly adjusted for safe operation prior to use.

A warning must be conveyed to the wheelchair operator that the controller could cause the chair to come to a sudden stop. In situations where this may affect the safety of the user, this will require the fitting and wearing of a seat belt.

Performance adjustments should only be made by professionals of the health care field or persons fully conversant with this process and the driver's capabilities. Incorrect settings could cause injury to the driver, bystanders, damage to the chair and surrounding property.

After the wheelchair has been set up, check to make sure that the wheelchair performs to the specifications entered in the programming procedures. If the wheelchair does not perform to specifications, turn the wheelchair off immediately and re-program. Repeat procedure until the wheelchair performs to the specifications.

Do not operate the DX system if it behaves erratically, or shows abnormal response, heating, smoke or arcing. Turn the system off, disconnect the battery or open the battery overload switch, and consult your service agent.

Do not operate your DX system if the battery is nearly flat as a dangerous situation may result due to a loss of power in an inopportune place.

Ensure the controller is turned off when not in use.

No connector pins should be touched, as contamination or damage due to electrostatic discharge may result. Dummy sockets in unused DXBUS connectors should be left in place unless a new module is added to the system.

Whilst designed to resist water penetration, under certain conditions moisture might enter the Genie Joystick. Any spillage's over the Genie Joystick should be wiped dry without delay. The Genie Joystick may be used outdoors in light drizzle conditions but should be protected from rain.

Most electronic equipment is influenced by Radio Frequency Interference (RFI). Caution should be exercised with regard to the use of portable communications equipment in the area around such equipment. While the manufacturer has

made every effort to ensure that RFI does not cause problems, very strong signals could still cause a problem. If RFI causes erratic behavior, shut the wheelchair off immediately. Leave off while transmission is in progress.

In the event of a fault indicator flashing while driving (battery gauge and/or status LED), the user must ensure that the system is behaving normally. If not, the system must be turned off and a Service Agent called immediately.

Report any malfunctions immediately to your Service Agent.

Know the risks and limitations

Like any mechanical propelled vehicle there are certain risks involved.

The driver is responsible for any damage or injury that may occur to a party as a result of using a powered wheelchair. If the driver cannot assume responsibility due to age or disability then a carer must be present and be able to take over control either using a stop switch or a dual control in case of an emergency. You may wish to consider taking out insurance to cover any claims arising from such an incident.

The most sensitive part of a Genie Joystick system is the joystick element itself. The owner or carer must assume responsibility for regularly checking the integrity of the joystick element and report any problems to the service agent immediately.

SECTION TWO

INSTALLATION, ADJUSTMENT & FAULT FINDING

1 Related Documentation

A DX based wheelchair control system may comprise between two and sixteen DX compatible modules depending on the application. Each DX compatible module has its own User Manual which describes the installation requirements of that particular module.

This manual describes the Genie Joystick remote only and must therefore be read in conjunction with the:

- DX Power Module (PMB) Installation Manual
- DX Hand Held Programmer (HHP) Manual
- Dynamic Wizard Installation Sheet
- Installation Manuals for all other DX Modules to be used in your application.

2 Specifications

Genie Joystick

Electrical

Compatible with standard DXBUS	
Operating voltage range	18v – 32v d.c.
Quiescent Current	<1mA Off, typically 250mA On

Mechanical

Weight	Approx 0.5 Kg
Mounting	As required by installer
Case material	Extruded aluminum, plastic coated.
Size	115mmx105mmx35mm
Joystick Height above box	60mm

Environmental

	Min	Max	Units
Operating ambient temperature range	-25	50	ºC
Storage temperature range	-25	70	ºC
Operating and storage humidity	0	90	%RH

The Genie Joystick is designed to resist water penetration, but under certain conditions moisture might enter the control. Suitable for light precipitation.

Intended Use

The Genie Joystick is designed to be used as an alternative input control for the Controls Dynamic DX Control System for Powered Wheelchairs.

The Genie Joystick contains a DX UCM (User Control Module) and is therefore a Master Remote.

Warning ! In any DX System there can be only one master remote connected at any one time. The system will not function correctly if more than one Master Remote are connected.

The Genie Joystick is compatible with the following DX power modules:

- DX-PM, DX-PM1, DX-PM2

The Genie Joystick is compatible with the following Actuator modules:

- DX-CLAM, DX-TAM, DX-ARC5

The Genie Joystick can be used in conjunction with any DX Secondary remote. The intended use of a secondary remote for this application would be if the Genie joystick element itself is unsuitable for the user's needs.

For compatibility with any other DX Module introduced by Controls Dynamic please contact Unique Perspectives.

The Genie Joystick can be operated with external switches rather than the buttons on the unit itself if required. The external switches should be of high quality, professionally connected and regularly maintained. For details of wiring and connections see Chapter 3 of this section.

The Genie Joystick is intended for use on Class A and B powered wheelchairs only.

The Genie Joystick is not designed for use with any other control system.

Knob Options

A selection of different knob options are available and are illustrated below:-

Mouse Emulator

Electrical

Power Supply	5V 100ma DC from USB interface
Quiescent Current	100mA

Mechanical

Weight	Approx. 250grams
Case material	Extruded aluminum, painted black.
Size	115mmx55mmx35mm

Environmental

	Min	Max	Units
Operating ambient temperature range	-25	50	ºC
Storage temperature range	-25	70	ºC
Operating and storage humidity	0	90	%RH

The Mouse Emulator is not designed for outdoor use.

Intended Use

The Mouse Emulator is a USB IBM compatible pointing device designed to enable those individuals who cannot use a standard computer mouse the ability to manipulate the windows mouse pointer using the Genie Joystick in computer access mode.

The Mouse Emulator receives proprietary IrDA InfraRed signals from the Genie Joystick and converts them into USB signals.

The Mouse Emulator is for indoor use only.

The Mouse Emulator can only be connected to a PC with a USB port. A PS/2 version is available for older computers on request.

The Mouse Emulator can only be used with a Genie Joystick.

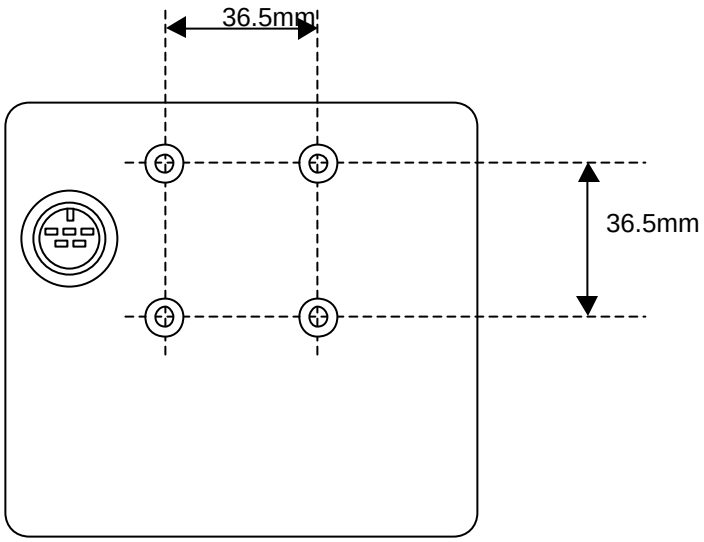
3 Installation & Testing

Mounting

A mounting system for the Genie joystick is available from Unique Perspectives. Contact your supplier for details. This consists of a mounting plate and extending arm. The mounting plate is fitted to the Genie joystick with 4xM4 screws. The mounting plate has a circular stud on its base which fits into a ring-holder on the end of the extending arm. The square extending arm slides into a corresponding tube located underneath the arm rest of the wheelchair. 5/8" tubing or ¼" tubing options are available.

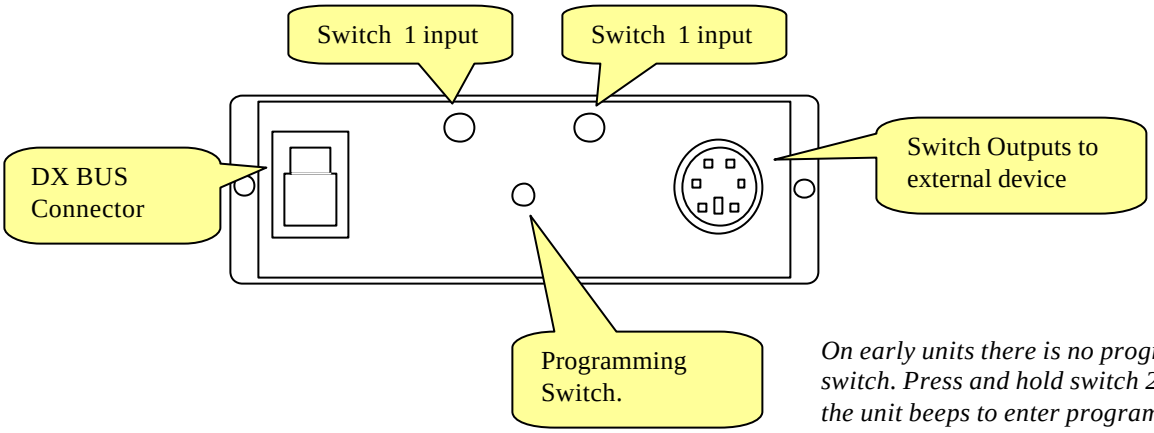
Warning !! The installation of the mount should be carried out by a qualified technician or other professional. For safe fitting of the mounting plate to the Genie joystick, select a screw length between 6mm and 10mm.

Dimensions of the mounting positions on the underside of the unit are shown below:



Connections

The connection panel is located at the bottom of the device and is illustrated below.



On early units there is no program switch. Press and hold switch 2 until the unit beeps to enter program mode (about 12 seconds).

Switch Inputs

For users who cannot operate the buttons on the Genie joystick itself 2x3.5mm jack sockets are provided on the connection panel. You can connect any non-latching switch to these sockets provided they are fitted with 3.5mm jack plugs.

Connector	Pin	Signal
Standard 3.5mm jack plug	Tip	Switch
	Sleeve	Switch common

Warning!!

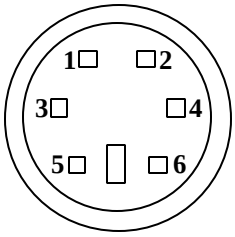
A user's switches must be connected professionally to the Genie Joystick by a qualified technician. Unique Perspectives accept no responsibility or liability for poorly made connections which may result in incorrect operation and possibly dangerous operation of the Genie Joystick.

Under no condition should a latching switch be connected to the Genie Joystick. Only use non-latching switches.

Unused sockets should be fitted with the plugs provided.

Switch Outputs & Interfacing to other devices.

To connect the Genie Joystick to an external device such as a communication aid or environmental control device five solid state relay contacts are provided on a 6 pin Mini DIN connector. These contacts reflect the state of the joystick position and Switch 1 when external access mode has been selected by the user.

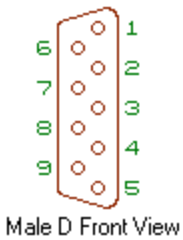
6 pin Mini DIN. Connector	Pin	Signal
	1	Switch common
	2	Joystick Left
	3	Joystick Right
	4	Joystick Down
	5	Joystick Up
	6	Switch 1

- *relays are current rated to 250ma*
- *contacts are isolated from wheelchair electronics*

The interface to the external device will depend upon the number of switch inputs and connector type available on the external device. Several different interface options are described below:-

Devices with a 9 pin D switch input

If the external device is capable of being controlled by a five switch device such as a TASH mini joystick, wafer pad or star switch then device will have a 9 pin D switch input. With a 6 pin Mini DIN to 9 pin D cable the Genie joystick can be connected to such devices and operated in exactly the same way as if the five switch device were connected to it. The pinout of the 9pin D is shown below:

Connector	Pin	Signal
9 Pin Male D  Male D Front View	1	Forward (Switch 2)
	2	Backwards (Switch 3)
	3	Left (Switch 4)
	4	Right (Switch 5)
	5	
	6	Select (Switch 1)
	7	
	8	Switch common
	9	

A 6 pin Mini DIN to 9 pin D cable is available for connection to devices with this type of switch input.

Devices with 3.5mm jack switch inputs

Unfortunately most communication aid devices have only 2x3.5mm switch inputs. In this case the Genie joystick can be wired to the device so that a forward deflection of the joystick activates the switch 1 input of the external device (normally the "select") and a backwards deflection of the joystick activates the switch 2 input of the external device (normally the "advance" or "step").

A 6 pin Mini DIN to 2x3.5mm jack plug cable is available for connection to such devices.

The GEWA PROG environmental control interface

The switch input of the GEWA PROG III is also a 6 pin Mini DIN connector whose pin-out matches that of the Genie joystick. To operate the PROG from the joystick it is necessary to put the PROG in joystick input mode. You can do this by pressing "**P+5"**, followed by "**3"** on the PROG. Consult the PROG manual for further details.

A pin-to-pin Mini DIN cable is available for connection to this device

Interfacing to GEWA Progress ECU.

A special interface cable is required whose pin-out is described below and the Genie joystick parameter "External Device" must be set to "3". See Section 2 Chapter 4 for details on adjusting Genie joystick parameters. The Progress should be set for 2 switch manual row/column scanning. When external access is selected, downward deflections of the joystick select the row. Right hand deflections select the cell within that row. And a final downward deflection activates the chosen cell. It is important to carry out the sequence of deflections as described otherwise the Progress may get out of step with the Genie. If this happens simply exit external access mode and re-enter it.

Genie Joystick			Progress	
Pin	**Signal**		**Pin**	**Signal**
1	Switch common	→	Jack 1&2, Sleeve	Switch common
2	Joystick Left	→		
3	Joystick Right	→	Jack 2, Tip	Switch 2 signal
4	Joystick Down	→	Jack 1, Tip	Switch 1 signal
5	Joystick Up	→		
6	Switch 1	→		

A Mini DIN cable to 2 3.5mm jacks is available for connection to this device

Interfacing to an environmental control unit and a communication aid.
To interface to more than 2 external devices it is necessary to operate both of them in a 1 or 2 switch mode as per “Devices with 3.5mm jack switch inputs” described above. Use forward/back deflections of the joystick for one device and left/right deflections for the other. An interface cable for this kind of setup is available on request. It is important to note however that as most modern communication aids have a built in environmental control unit, or the option of it, this type of setup is rarely required.

Interfacing to DynaVox communication aid with switch inputs.
The switch inputs of a DynaVox are peculiar in that they can not share a common signal. A special interface cable is required whose pin-out is described below and the Genie joystick parameter “External Device” must be set to “2”. See Section 2 Chapter 4 for details on adjusting Genie joystick parameters.

Genie Joystick Pin	Signal		DynaVox Pin	Signal
1	Switch common	→		
2	Joystick Left	→	Jack 1, Sleeve	Switch 1 common
3	Joystick Right	→	Jack 2, Sleeve	Switch 2 common
4	Joystick Down	→	Jack 2, Tip	Switch 2 signal
5	Joystick Up	→	Jack 1, Tip	Switch 1 signal
6	Switch 1	→		

A Mini DIN cable to 2 3.5mm jacks is available for connection to this device. Note that for modern devices with a USB port the USB interface is a better solution, see below.

Interfacing to the USB port on an “on-chair” computer or communication device

A USB interface cable is now available. This allows the Genie to be connected to the USB port of an “on-chair” computer or communication device. The cable connects from the Genie switch output port to the USB port of the external device. The cable has electronics built in which “fool” the computer or communication device into thinking that a standard USB mouse is connected. When external access is selected the joystick on the Genie is used to move the mouse pointer and button 1 makes left click selections. Mouse movements are non-proportional.

When interfacing to a communication device such as a DynaVox Mk4, MiniMo or MightMo all that is required is to set the Input Method to Mouse. When interfacing to a computer no set up is required. The computer sees the Genie as an ordinary USB mouse.

Note that this interface is in addition to the wireless mouse already built into the Genie. This means that the user can have wireless control over a desktop computer, and also control (through the cable) of an “on-chair” computer.

Warning!! Unique Perspectives has tested the external access function with a number of external devices including products from Cambridge Adaptive Communication, GEWA AB, Toby-Churchill and the DynaVox range. Unique Perspectives cannot guarantee correct operation of other external devices. The relay contacts are solid state and current rated to 250ma. Although the relay connections are isolated extreme care must be taken when wiring to new products. Unique Perspectives accept no responsibility or liability for poorly made or incorrect connections which may result in incorrect operation and possibly dangerous operation of the Genie Joystick and/or external device.

DX Programming Socket

The DX hand held programmer or DX Wizard cable plugs into this socket which is located underneath the unit. This gives the programmer access to editing the parameters of the DX System to optimize wheelchair performance and drive characteristics.

DX BUS Cabling

The Genie Joystick has one DXBUS connector which enables the Genie Joystick to be connected to the DX system.

The Genie Joystick will normally be connected directly to one of the two Power Module DXBUS sockets with a DXBUS cable.

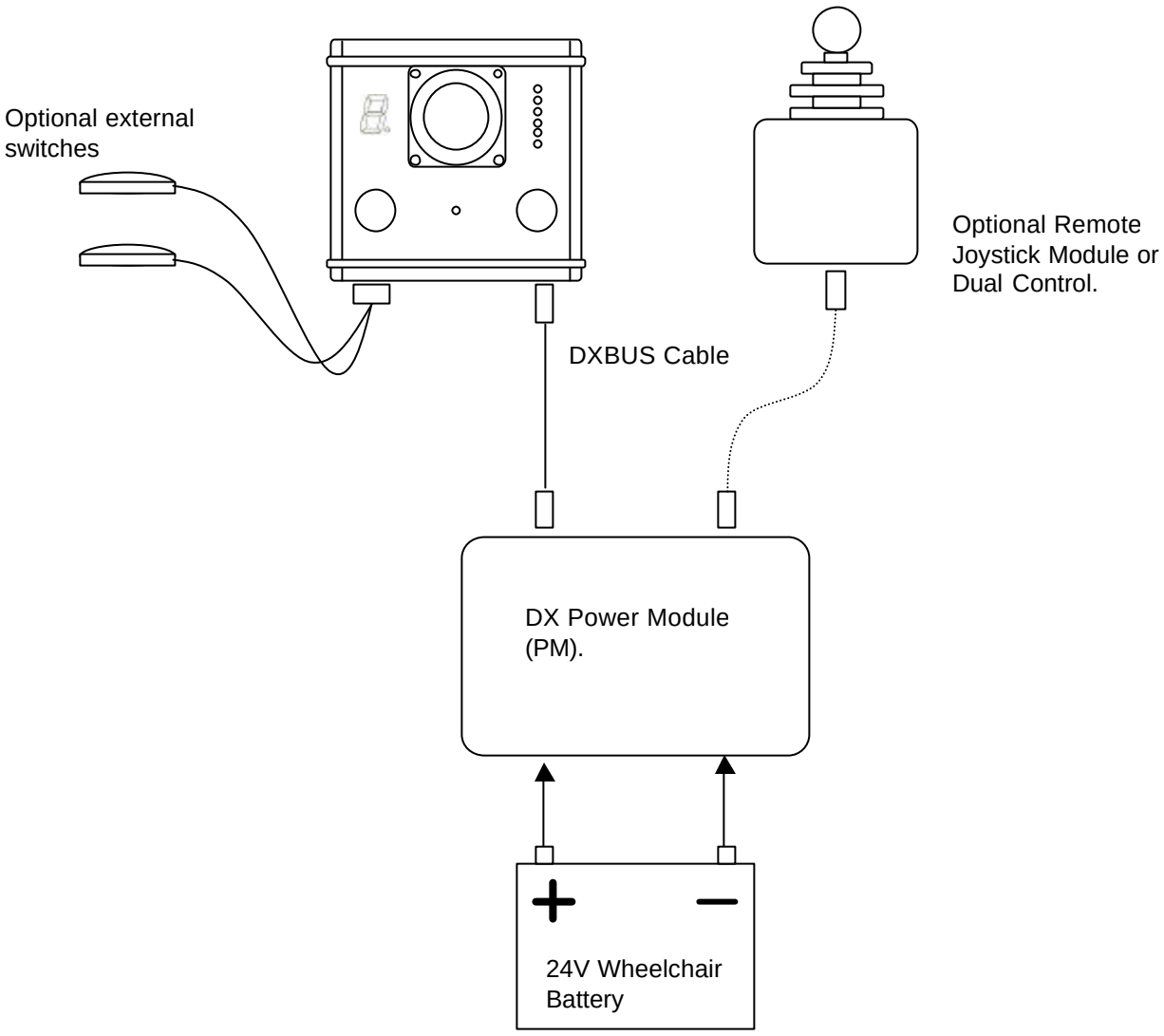
The Charger cable plugs into the second DXBUS socket.

If you are connecting more DX modules such as a CLAM or RJM you will need to fit a DX BUS 4 Way Socket to expand the number of available sockets. The part no. for this socket is DX-SKT-X4.

The DXBUS cables are available in the following standard lengths

DXBUS Cable, Straight, 0.12M
DXBUS Cable, Straight, 0.3M
DXBUS Cable, Straight, 0.5M
DXBUS Cable, Straight, 1.0M
DXBUS Cable, Straight, 1.5M
The DXBUS cable length should be selected so that the cable is neatly attached to the wheelchair frame. The cable should never be loose and no possibility should exist for the cable to snag on the moving parts of the wheelchair, the person sitting in the wheelchair, and/or on items external to the wheelchair such as door handles etc.

A typical DXBUS connection system is illustrated on the following page:



USB Cable

The Mouse Emulator is fitted with a 2m USB cable.

The USB Cable is a standard cable that is connected to the USB port of your computer. However a PS2 version is available on request for older computers.

Testing

Ensure that all DX Modules used in the system and the Genie Joystick have been installed as specified in their installation procedures. The Genie Joystick needs to be correctly programmed for the appropriate wheelchair prior to testing. This is normally done by the supplier, see chapters 4 & 5 of this section.

A Genie Joystick Remote contains the complete wheelchair system set up, from which all attached modules download their relevant information when the DX system is first turned on.

Powering Up

Power up the Genie Joystick by pressing and releasing switch.

Power Up Response

The power up response for the Genie Joystick is:

- The 7 segment display will display the current Drive Profile.
- The System Status LED will come on steady.

Note: The first time the Genie Joystick is turned on after it has been fitted, the System Status LED will flash a fault. This is because the Genie Joystick must download its information to the DX Power Module. Turn the Genie Joystick off, then on, to clear this fault.

- At least one of the LEDs on the Battery gauge will be on.

Genie Joystick Check Sequence

Perform the following Genie Joystick check sequence:

Note: The following check sequence assumes that the parameters of the Genie joystick have been reset to default (as shipped). For more information on resetting parameters to default see page 61.

1. Turn on the joystick by pressing Switch 1.
2. If the system status LED does not come on steady, but flashes, then there is a fault with one of the DX modules in the system or there has been an auto-download.
3. Confirm that the Genie joystick is driving the chair by moving the joystick.

Seat Function Check Sequence (if actuators are fitted)

1. Press Switch 1 and choose Seat function mode by deflecting the joystick forward until the seat symbol is displayed. Then press Switch 1 again.

2. Use Left/Right deflections of the joystick to select an Actuator.

3. Use Forward/Back deflections of the joystick to extend or retract the actuator.

4. Press Switch 1 to return to driving.

Lights Check Sequence (if lights are fitted)

1. Press Switch 1 and choose Lights mode by deflecting the joystick forward until a ‘L’ symbol is displayed. Then press Switch 1 again.

2. Confirm that the side lights are operating by deflecting the joystick forward.

3. Confirm that the hazard lights are operating by deflecting the joystick backwards. Turn them of by deflecting the joystick a second time.

4. Confirm that the indicators are operating by deflecting the joystick Left/Right.

5. Press Switch 1 to return to driving.

Drive Profile Check Sequence

1. Press Switch 1 and choose Drive Profile mode by deflecting the joystick forward until a ‘P’ symbol is displayed. Then press Switch 1 again.

2. Use Forward/Back deflections of the joystick to select a new drive profile.

3. Press Switch 1 to return to driving and confirm that the correct drive profile number is displayed.

Power Off Check Sequence

1. Press Switch 1 and choose Power down mode by deflecting the joystick forward until the power down symbol is displayed. Then press Switch 1 again.

2. Confirm that the Genie joystick turns off.

Alternatively

1. Press Switch 2 and confirm that the Genie joystick turns off.

External Access Check Sequence (if fitted)

1. Connect the Genie joystick to the external device using the correct interface cable. See page 38 for details.

2. Press Switch 1 and choose External Access mode by deflecting the joystick forward until a ‘E’ symbol is displayed. Then press Switch 1 again.

3. Confirm that the joystick is operating the external device as expected.

4. Press and hold Switch 1 until the Genie emits a beep to return to driving (about 2 seconds).

Computer Access Check Sequence

1. Connect the Genie mouse emulator to the USB port of your computer and then turn on the computer.

2. After Windows starts confirm that the green LED behind the front panel of the emulator is blinking. This indicates that the USB connection is established but that the signals from the Genie joystick on the wheelchair are not being received.

3. Position the emulator at the edge of the table in line with the computer monitor.

4. Turn on the wheelchair by pressing Switch 1 on the Genie joystick and position it facing the computer monitor.

5. Confirm that the green LED behind the front panel of the emulator goes steady. This indicates that the infrared link between the Genie joystick and the mouse emulator is working correctly.

   If the green LED does not come on steady then the joystick is out of range, not positioned properly or there is an obstruction in the way. The emulator should be able to pick up the signals from a distance of 2 metres with a ±30° spread in all directions. This ability can deteriorate with the effect of ambient lighting. It is important to position the emulator overlapping the edge of the

table (or ideally mounted to the underneath of the table) so that the table itself does not obstruct the infrared signals between the two devices.

6. Press Switch 1 and choose Computer Access mode by deflecting the joystick forward until a 'C' symbol is displayed. Then press Switch 1 again.

7. Confirm that the Genie joystick is moving the mouse pointer on the screen.

8. Confirm that Switch 1 is operating the Left Click and that Switch 2 is operating the right click.

9. Press and hold Switch 1 until the Genie emits a beep to return to driving (about 2 seconds).

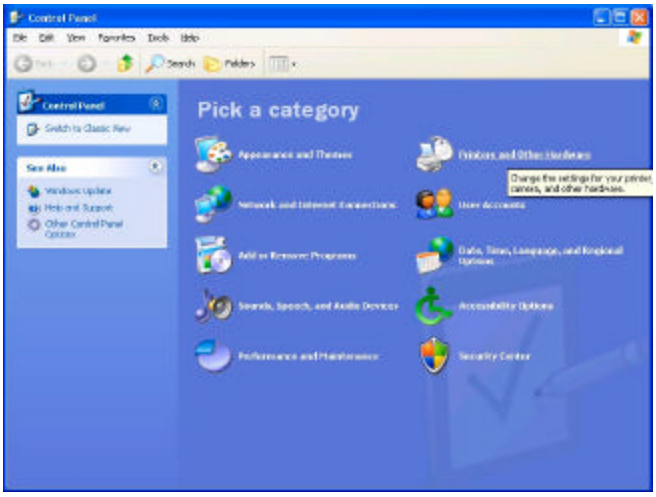
Setting the mouse speed

In Windows XP it is possible to adjust the Genie Joystick mouse speed. Setting the optimum mouse speed for a particular user is an important part of the installation procedure. Too slow and the user will find moving from one side of the screen to the other time consuming. However too fast and the user will be unable to make the small movements required to select certain controls, for example when browsing a menu. Choosing the best speed is a compromise between speed and controllability.

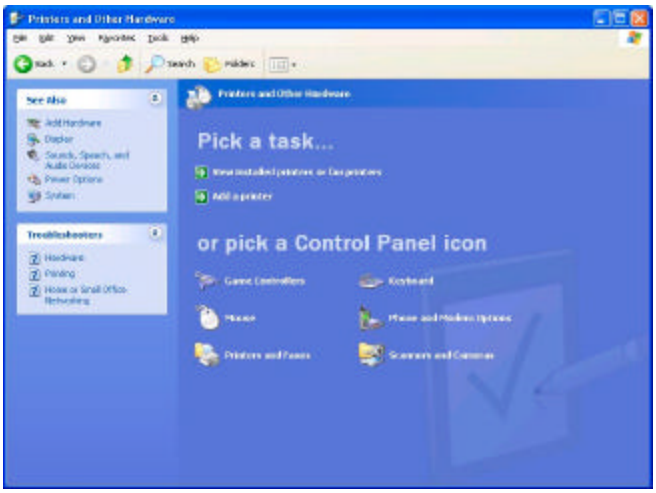
It is also possible to program Button 2 to change the mouse speed. See page 51.

To edit the mouse pointer speed

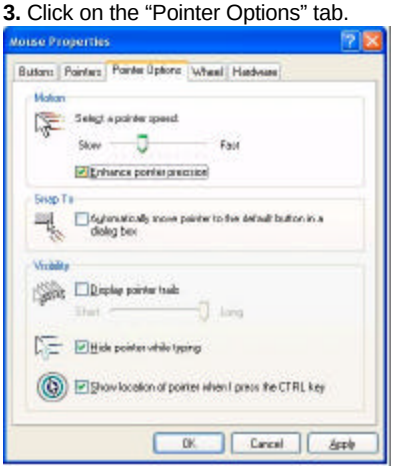
1. From the "Start" menu choose "Control Panel" and then click on "Printers and Other Hardware".



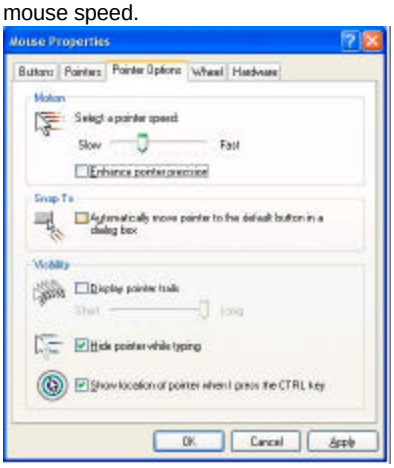
2. Click on “Mouse”.



3. Click on the “Pointer Options” tab.



4. Select the required pointer speed by adjusting the “Motion” slider. Note that changing the “Enhance pointer precision” option also effects mouse speed.



Warning: If any of the checks fail contact your supplier immediately and do not continue to use the Genie joystick.

4 Programming the Genie Joystick

Warning !!
Incorrect or inappropriate programming of the Genie Joystick can put the wheelchair into a dangerous state. Unique Perspectives accept no responsibility or liability for accidents caused by incorrect programming. This section must be read and understood before attempting to program the Genie Joystick

Ensure that the programmed Genie Joystick complies with all prevailing regulatory requirements for your country and application

Introduction

The performance of the Genie Joystick, its operating mode and parameter settings may not be decided or known until the chair is supplied to the end user by their assessment center or other supplier. Typically the fine tuning of the Genie Joystick will be carried out by a technician in collaboration with an occupational therapist during assessment of a users operation capability, very often in the user's home or place of work. It is for this reason that the programming of the Genie Joystick's performance is carried out on the device itself without the need for a DX hand held programmer or a DX Wizard program.

The Genie Joystick has a set of programmable parameters which allow a technician in collaboration with an occupational therapist or other professional to adjust the Genie Joystick so that it best suits a user's needs and switch/joystick operation capability. The programmable parameters are described below.

Programmable Parameters Page 1

Selection_Method

This parameter selects the required selection method, i.e. how the user changes modes.

Selection Method = 1, Switch Only.
Selection Method = 2, Switch + Joystick. (Default)
Selection Method = 3, Joystick + Switch
Selection Method = 4, Joystick Only.

"Switch Only"
By pressing and holding switch 1 the display toggles through symbols representing each mode. Release switch 1 when the desired mode is displayed.

"Switch + Joystick"
Press switch 1 to enter mode selection. The display shows a symbol representing the first mode. Deflecting the joystick forward goes onto the symbol for the next mode. Deflecting the joystick

backwards goes onto the symbol or the previous mode. Pressing switch 1 selects the mode that is displayed.

"Joystick + Switch"
Press switch 1 to enter mode selection. The display shows a symbol representing the first mode. Pressing switch 1 again goes on to the symbol for the next mode. Deflecting the joystick forward selects the mode that is displayed.

"Joystick only"
A backwards flick of the joystick selects mode selection. The display shows a symbol representing the first mode. Deflecting the joystick forward goes onto the symbol for the next mode. A backwards flick of the joystick selects the mode that is displayed.

Time_Base

This parameter sets the time base for the various selection methods.

In "Switch Only" it is the length of time that the switch must be held in order to move on to the next mode.

In "Joystick + Switch" it is the repeat rate when the joystick is held forward or backwards.

In "Joystick only" it is the joystick repeat rate but more importantly the length of time that defines a joystick "flick" is half this time base parameter.

When the accidental hit parameter is set to 2 or 4 the time base defines the switch acceptance time.

The parameter can be set to one of eight values:-

1 = time base of 250ms (¼ second)
2 = time base of 300ms
3 = time base of 350ms
4 = time base of 450ms (Default)
5 = time base of 600ms
6 = time base of 800ms
7 = time base of 1.2seconds
8 = time base of 2seconds

Avoid_Accidental_Hits

1 = none
2 = Mode selection
3 = On power up only
4 = Both

Power Up
When set to 3 or 4 this parameter requires a user to hold switch 1 for 2 seconds before the Genie Joystick will fully power up.

Mode Selection
When set to 2 or 4 switch 1 must be pressed for a certain amount of time before a switch press is recognised. By setting this option involuntary presses of the switch can be avoided.

The length of time is half the time base. In other-words if the time base is 1.2 seconds the switch 'acceptance time' is 0.6 seconds.

Switch 2

The function for Switch 2 in mouse mode is set according to the following table:

1 – Right Click function (default)
2 – Left Double Click function
3 – Left Drag Lock function
4 – Mouse Speed
5 – Direct exit back to drive mode

When set to 4, the right button can be used to toggle between 3 mouse speeds:

Speed 1 - slow speed
Speed 2 - a combination of slow and fast speeds whereby the mouse starts off slow and after 1 ½ seconds changes to fast speed.
Speed 3 - fast speed

The new speed is displayed as the right button is pressed. The last speed setting chosen by the user is stored when the Genie is turned off. When the Genie is turned on again it will use the stored mouse speed. The default speed is fast (after a reset). The base mouse speed for an RJM joystick can be selected with the RJM_Mouse_Speed parameter on program page 3.

Tip!! *If the user wishes to use Speed 2 but wants Button 2 to be the right click then enter program mode and set Button 2 to be the Mouse Speed, exit program mode and select Speed 2, then re-enter program mode and set Button 2 back to be the Right Click.*

NOTE*: In Joystick Only mode it is only possible to use Button 2 for Mouse Speed or Direct Exit (i.e. option 4 or 5).*

Power_Down_Timer

When set to "Y" the Genie will automatically power down after 20 minutes if no activity is detected.

Exit_Time

The length of time that Switch 1 must be held on order to return to driving mode from Computer Access mode or External Access mode. In all other modes pressing switch 1 immediately returns to driving.

1 = 500 ms, 2 = 1 sec, 3 = 2 sec, 4 = 3 sec,
5 = 4 sec, 6 = 5 sec, 7 = 6 sec 8 = 7 sec

It is important to consider whether you are controlling an environmental control device in external access when setting this parameter. If so remember that some functions may require switch 1 to be held for a reasonable length of time, such as a TV volume UP command. It is for this reason that this parameter exists. Set the Exit_Time long in this type of setup. If you are not connecting an environmental control then it is better to keep the Exit_Time as short as possible in order to return to driving as quickly as possible.

Programmable Parameters Page 2

Alarm

This parameter defines what kind of alarm will be made. To activate the alarm the user must press and hold Switch 1 until an 'A' is displayed in the 7 segment display and the Genie starts beeping rapidly. This length of time is equal to twice the Exit_Time.

1 – No alarm
2 – Audible alarm
3 – Audible alarm + Text Message

When set to 3 and the Genie is equipped with a BlueTooth interface and the SmartPhone is switched on and connected the Genie instructs the SmartPhone to send a pre-written text message is sent to a specific number. For more information see the "ClickToPhone" user manual.

Max_Profile_Number

This parameter defines the range of Drive profile numbers that the user can select on the Genie joystick. Note that the Max Profile Number parameter in the DX wizard file should always be set to 5. See page 63 for programming DX parameters.

RJM

When set allows a DX remote joystick module to be used as well as the Genie joystick. Since you can only drive from one joystick at a time you must also set the "Joystick Source" parameter in the DX wizard to "Remote" for each Drive Profile in which you wish to drive using the RJM. For menu selection to work correctly from the RJM one of these profiles must be Drive Profile 1.

There are 3 restrictions when using an RJM Joystick:

1. Mouse movements are non-proportional and only operate in 8 directions. (The base mouse speed for an RJM joystick can be selected with the RJM_Mouse_Speed parameter on program page 3)

2. The Joystick Threshold parameter is fixed at 50%.
3. It takes a little longer to switch between operation modes.

NOTE: If you want mouse movements using the Genie joystick to be non-proportional set the Joystick_Threshold parameter to 50% (see next page).

Enable_My_Set

The Genie joystick offers the unique possibility of creating your own set of operation modes to choose from and in what order you choose them. For example one user may only want to switch between driving and computer access whist another may wish to switch between driving, computer access, seat function and drive profile selection. How to create this set is described later in this chapter.

After creating your set of operation modes you must enable it by setting this parameter to 'Y'.

The default set of operation modes and the order in which they are presented is:

1. Computer Access
2. External Access
3. Seat control
4. Lights,
5. Select drive profile,
6. Power down.

Joystick_Threshold

In non-driving modes the joystick can be thought of as a 4 way switch. Deflecting the joystick forward is one switch, deflecting the joystick left is another and so on. The distance away from center that the joystick has to be deflected before the movement is detected as a switch is called the joystick threshold.

The joystick threshold also controls the mouse sensitivity. When set to fine a very small deflection of the joystick will start the mouse moving. When set to coarse a very large deflection of the joystick is required.

Value	Switch Detect %	Mouse sensitivity
1	12.5%	Fine
2	25% (default)	Standard
3	50%	Coarse (almost non-proportional)

Set this value to 3 if the user is prone to involuntary movements. Set this value to 1 if the user can make small deflections on the joystick.

***Note !!** This parameter does not apply to an RJM joystick. The Threshold for RJM joysticks is fixed at 50%.*

External Device

This parameter selects what type of external device you are connected to. It is specifically to designed to overcome the peculiarities of interfacing to a DynaVox communication device and to provide a more user friendly interface to a GEWA Progress ECU.

1 = standard device, such as GEWA Prog3, CAM3, TASH Relax, Tellus, and any device that can already be controlled using switches.
2 = 2 cable connection to a DynaVox communication device
3 = 2 cable connection to a GEWA Progress

DynaVox communication aids
These devices have 2 switch inputs with isolated common signals. Because the Genie joystick uses a shared common on the switch outputs it is necessary to use a special interface cable and to enable this parameter. See page 38 for wiring details on the interface cable.

Programmable Parameters Page 3

This is a new page of parameters added in Revision C to allow the seat function list to be edited so that only those actuators which are present on the wheelchair will be displayed. It allows you to associate a symbol with a particular actuator or to not display it. The last parameter in this page determines the mouse speed for RJM joysticks.

The standard seat function list is illustrated below:

Parameter	Parameter / Symbol Name	Symbol	Actuator (default)
1	Back Rest		1
2	Back Tilt		2
3	Seat Height		5

4	Foot Rest Left		3
5	Foot Rest Right		4

Back_Rest

This parameter selects which Actuator is associated with the symbol. Setting the parameter to 6 means that it will not be displayed in the scan. Default is Actuator 1.

Back_Tilt

This parameter selects which Actuator is associated with the symbol. Setting the parameter to 6 means that it will not be displayed in the scan. Default is Actuator 2.

Seat_Height

This parameter selects which Actuator is associated with the symbol. Setting the parameter to 6 means that it will not be displayed in the scan. Default is Actuator 5.

Foot_Rest_Left

This parameter selects which Actuator is associated with the symbol. Setting the parameter to 6 means that it will not be displayed in the scan. Default is Actuator 3.

Foot_Rest_Right

This parameter selects which Actuator is associated with the symbol. Setting the parameter to 6 means that it will not be displayed in the scan. Default is Actuator 4.

RJM_Mouse_Speed

This parameter selects the base mouse speed when using an RJM joystick.

1 = slow (default)
2 = medium
3 = fast

Programming Mode

All programmable parameters can be adjusted on the Genie Joystick itself without the need for a DX hand held programmer or a DX Wizard program.

To select the Programming Mode

1. Located at the front of the Genie Joystick is a small hole through which you have access to the programming switch.

2. Connect the Genie Joystick to a DX system.

3. Turn on the Genie Joystick by pressing Switch 1.

4. Press and release the programming switch using a pencil or other suitable non-metallic object.

LED meaning in program mode.

The parameters are divided into 4 separate groups or ‘pages’.

Page 1 is identified by 1 flash of the decimal point in the 7 segment display. To move on to the next page press Switch 2.

Page 2 is identified by 2 flashes of the decimal point. To move on to the next page press Switch 2.

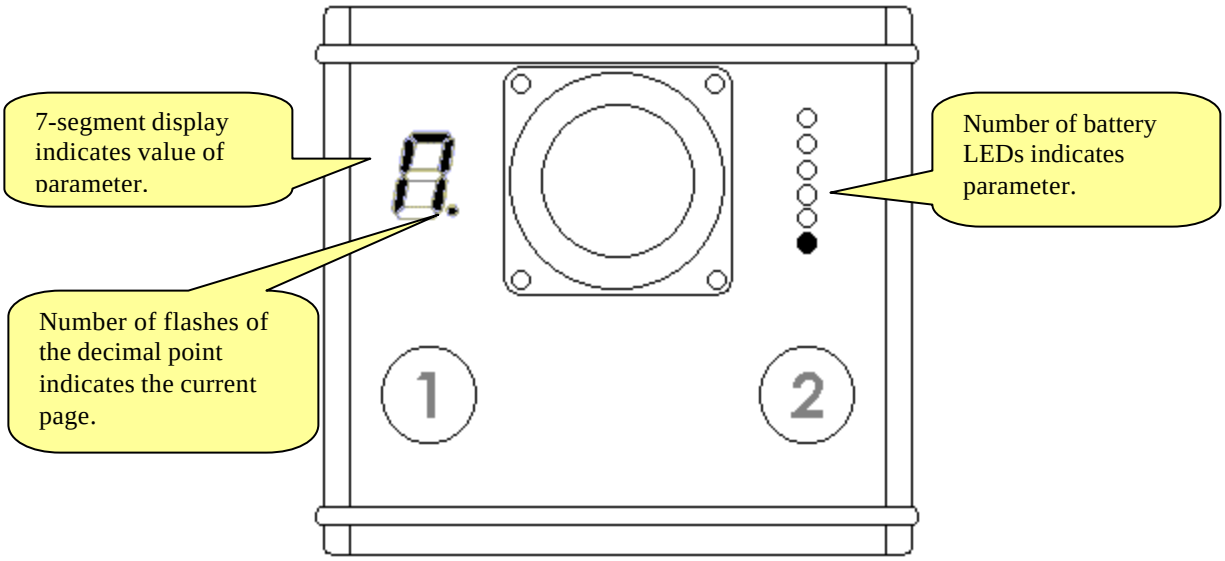
Page 3 is identified by 3 flashes of the decimal point. To move on to the next page press Switch 2.

Page 4 is identified by 4 flashes of the decimal point.

To exit program mode press Switch 2 one more time. The decimal point flashes rapidly to indicate the end of program mode and the saving of all parameters after which normal operation continues.

The battery LEDs of the Genie Joystick are used to indicate which parameter within a particular page is being adjusted. There are six parameters in each page and the current parameter is identified by the number of illuminated battery LEDs. The exception is page 4 which does not use the battery gauge and is for creating your own set of operation modes. This is discussed further on.

The 7-segment display indicates the value of a particular parameter. The parameter can be a number or a ‘Y’ or ‘N’ symbol.


7-segment display indicates value of parameter.
Number of battery LEDs indicates parameter.
Number of flashes of the decimal point indicates the current page.
1
2

Selecting a parameter

Switch 1 is used to step from one parameter to the next and to change a parameter value. A short click of Switch 1 selects the next parameter.

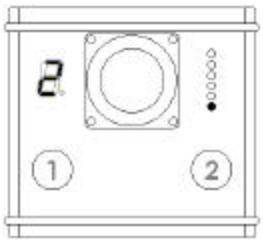
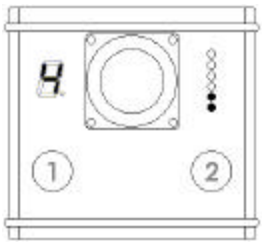
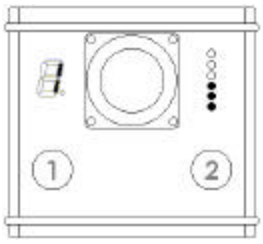
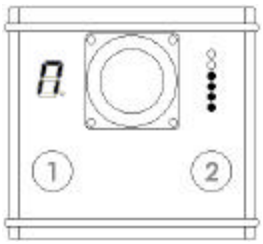
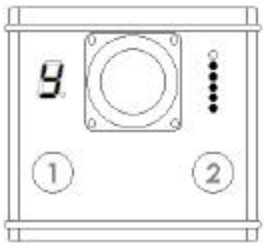
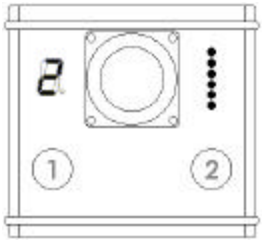
Changing a parameter value

To change the value of a parameter press and hold Switch 1 until the Genie joystick emits a beep and the parameter value changes.

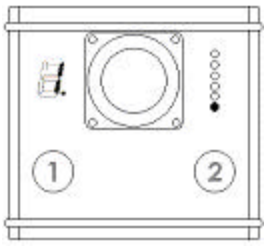
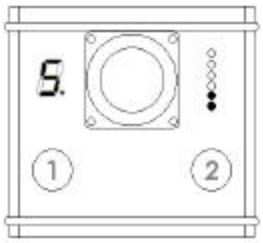
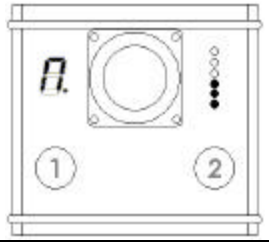
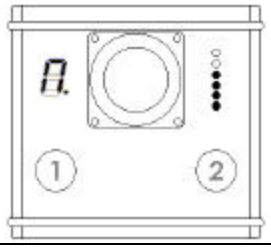
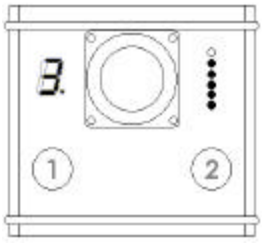
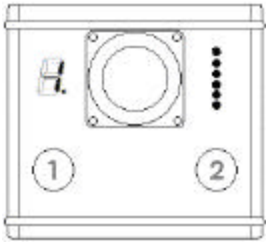
***Tip**: Before you enter program mode, look at the table of parameters and know beforehand what changes you want to make. Photocopy the 'Quick Reference Guide' at the end of this manual and by circling the options you have chosen you will have a record of your personalised settings.*

The tables on the following pages list the Genie Joystick parameters.

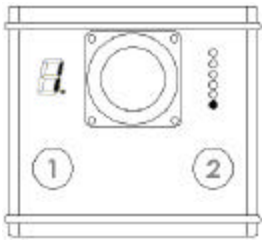
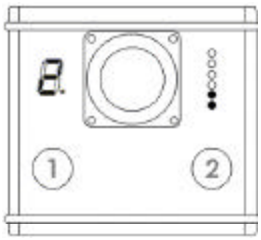
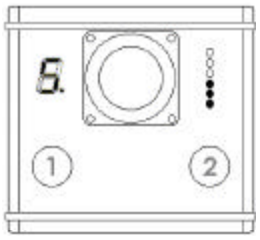
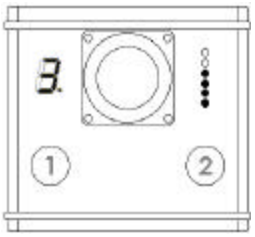
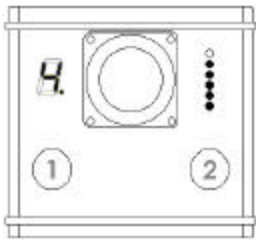
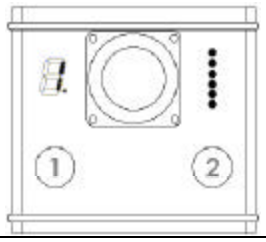
Parameter Adjustment Table – Page One

Parameter (page 1)	Genie	Value and meaning
Selection_Method		1 = Switch Only 2 = Switch + Joystick 3 = Joystick + Switch 4 = Joystick Only Default: Switch + Joystick
Time_Base		1 = 250ms, 2 = 300ms, 3 = 350ms, 4 = 450ms, (Default) 5 = 600ms, 6 = 800ms, 7 = 1.2sec, 8 = 2 sec
Avoid_Accidental_Hits		1 = No accidental hits are not avoided (default) 2 = Yes, during mode selection. 3 = Yes, during startup 4 = Yes, both Default: No
Switch 2		1 = Right Click 2 = Left Double Click 3 = Left Drag Lock 4 = Mouse Speed 5 = Exit mouse mode Default: 1 Right Click *4&5 only in Joystick Only mode*
Power_Down_Timer		N = not required Y = yes, power down the Genie after 20mins of no use. Default: Yes
Exit_Time		1 = 500ms 2 = 1 sec exit time 3 = 2 sec (default) 4 = 3 sec exit time 5 = 4 sec exit time 6 = 5 sec exit time 7 = 6 sec exit time 8 = 7 sec exit time

Parameter Adjustment Table – Page Two

Parameter (page 2)	Genie	Value and meaning
Alarm		1 = No Alarm 2 = Audible Alarm 3 = Audible Alarm + Text Message Default: 1, no alarm
Max_Profile_Number		Can be set from 1-5. Default: 5
RJM		N = not fitted Y = yes, RJM is fitted Default: not fitted.
Enable_My_Set		N = No, do not use my set of operation modes Y = yes, use my set of operation modes. Default: No
Joystick_Threshold		1 = 12.5%, Fine 2 = 25%, Default 3 = 50%, Coarse Default: 25% *Does not apply to RJM joystick (fixed at 50%).*
External_Device		1 = Standard connection. 2 = 2 cable connection to a DynaVox communication aid. 3 = 2 cable connection to a GEWA Progress ECU Default: 1

Parameter Adjustment Table – Page Three

Parameter (page 2)	Genie	Value and meaning
Back Rest		Can be set from 1-6. A setting between 1 and 5 selects the physical actuator associated with this symbol. Setting to 6 disables this symbol from the seat function display. Default: 1
Back Tilt		Can be set from 1-6. A setting between 1 and 5 selects the physical actuator associated with this symbol. Setting to 6 disables this symbol from the seat function display. Default: 2
Seat Height		Can be set from 1-6. A setting between 1 and 5 selects the physical actuator associated with this symbol. Setting to 6 disables this symbol from the seat function display. Default: 5
Foot Rest_Left		Can be set from 1-6. A setting between 1 and 5 selects the physical actuator associated with this symbol. Setting to 6 disables this symbol from the seat function display. Default: 3
Foot Rest_Right		Can be set from 1-6. A setting between 1 and 5 selects the physical actuator associated with this symbol. Setting to 6 disables this symbol from the seat function display. Default: 4
RJM_Mouse_Speed		Sets the base mouse speed when using an RJM joystick. 1 = Slow 2 = Medium 3 = Fast Default: 1

Creating Your Own Set of Operation Modes

With the Genie it is possible to choose not only what operation modes will be accessible for a particular user but also in what order the will be presented.

The Genie Joystick program page 4 allows the technician to create a unique set of operation modes.

To create your own set of modes

1. Select page 4 within the program mode (4 flashes of the decimal point)
2. The symbol in the 7 segment display indicates the current “first” mode.
3. Use short clicks of switch 1 to display the “first” mode you want.
4. When it is displayed press and hold switch 1 until the Genie beeps. The chosen mode for this step is stored and a new step begins.
5. Repeat from step 3 until you have entered all the steps of your set. Note that you can not exceed 6 steps, i.e. no more than 6 modes anyway.
6. When you have finished entering your set press and release switch 2. The steps are stored in the Genie Joystick and normal operation resumes.
7. To enable your set you must re-enter program mode and change the parameter ‘Enable_My_Set’ from ‘N’ to ‘Y’.

Note:

- When you store the first step of a new set the previous set is erased. In other-words you cannot edit a set, just replace it.

Resetting Parameters to Factory Values

At some stage you may want to reset all the parameters to the factory values. The factory values are those listed as the default values in the parameter adjustment tables.

To reset the parameters to factory values

1. Make sure the Genie Joystick is on.
2. Make sure the Genie Joystick is not in program mode.

3. Press and hold the program switch until the decimal point in the 7 segment display begins to flash rapidly, about 4 seconds, then release the program switch.

4. All parameters have been reset to their factory (default) values.

Note: Be absolutely sure about resetting a user's parameter settings. If you have not written them down somewhere there is 'no way back'.

5 Programming the DX System

Note !!
The Genie Joystick is a third party product manufactured by Unique Perspectives Ltd. The Genie Joystick contains a DX User Control Module (UCM) whose programming is loosely based on the DX Dolphin remote. The following documentation applies to the Genie Joystick and has been referenced from the DX Dolphin Remote manual.

This section only deals with programming the DX system for optimum wheelchair performance. For programming of the Genie Joystick operation refer to chapter 4 in this section.

Warning !!
Incorrect or inappropriate programming of the DX System can put the wheelchair into a dangerous state. Unique Perspectives accept no responsibility or liability for accidents caused by incorrect programming. This section must be read and understood before attempting to program the DX System

Ensure that the programmed DX System complies with all prevailing regulatory requirements for your country and application

Downloading the correct DX wizard file

Note: Normally it is not necessary to carry out this task as it will already have been done by your supplier.

Every master remote contains a DX wizard file that specifies all the data required to safely operate the wheelchair in question. It is not possible to use a handset (or Genie) from one type of wheelchair on another without first downloading the correct wizard file. For example a handset fitted to a Cruiser Plus will not drive a Storm and visa versa.

When you order a Genie specify the type of wheelchair that you are connecting it to and the Genie will be provided with the correct file already downloaded.

If you have already purchased a Genie or wish to use one on another type of wheelchair contact technical@click2go.ie and we will email you the correct file if available.

If the correct file is not available there are 2 possible procedures for creating it and these are explained in the following pages.

Procedure 1: Copying the file from the original handset into the Genie and editing it (Preferred).

Upload the wizard file from the existing Handset

1. Connect the DX Wizard dongle into the printer port and connect the DX serial cable from the serial port of your computer and insert it into the programming socket on the Handset. Turn on the handset.

2. Open the DX wizard program and choose “Read Wheelchair” from the “Wheelchair” option in the menu bar.

Edit the wizard file with Genie specific options

3. Double click on “UCM Remote” in the program modules list.

4. Ensure that the following 7 parameters are set according to the table below:

Parameter	Value
Max Profile Number	5
Wrap Profiles	Yes
Change Prof Driving	Yes
Allow Non Driv Prof	Yes
Joystick Actuator	Yes
Sleep Enable	No
Lock Enable	No

Download the edited wizard file to the Genie

5. Replace the existing handset with the Genie and connect the DX serial cable to the programming socket underneath the unit.

6. Turn on the Genie and download the edited file by choosing “Write Wheelchair” from the “Wheelchair” option in the menu bar.

7. After download is complete turn off and on the Genie to complete the process and confirm that the Genie is driving the wheelchair and that items can be selected from the menu.

NOTE 1: You must have a Wizard program with OEM options in order to edit the above parameters. If you do not email your wizard file to technical@click2go.ie and we will do the changes for you.

NOTE 2: If the original handset has a Rev A or older UCM module you will be prompted to convert the file to a Rev C version when you try to download it to the Genie. In this instance we recommend you use procedure 2 below or contact technical@click2go.ie and we will do the conversion for you.

Procedure 2: Editing the file in the Genie to match the original handset

Upload the wizard file from the existing Handset

1. Connect the DX Wizard dongle into the printer port and connect the DX serial cable from the serial port of your computer and insert it into the programming socket on the Handset. Turn on the handset.

2. Open the DX wizard program and choose “Read Wheelchair” from the “Wheelchair” option in the menu bar.

3. Print out the wizard file.

Upload the wizard file from the Genie and edit it

4. Connect the DX serial cable from the serial port of your computer and insert it into the programming socket on the Genie. Turn on the Genie.

5. Open the DX wizard program and choose “Read Wheelchair” from the “Wheelchair” option in the menu bar.

6. Double click on “Power Module” in the program modules list. Edit all the parameters to match those on the print out.

7. Double click on “UCM Remote” in the program modules list. Edit all the parameters to match those on the print out except those listed in the table below which should already be set to the values shown.

Parameter	Value
Max Profile Number	5
Wrap Profiles	Yes
Change Prof Driving	Yes
Allow Non Driv Prof	Yes
Joystick Actuator	Yes
Sleep Enable	No
Lock Enable	No

8. Turn on the Genie and download the edited file by choosing “Write Wheelchair” from the “Wheelchair” option in the menu bar.

9. After download is complete turn off and on the Genie to complete the process and confirm that the Genie is driving the wheelchair and that items can be selected from the menu.

NOTE 1: You must have a Wizard program with OEM options in order to edit the above parameters. If you do not email your wizard file to technical@click2go.ie and we will do the changes for you.

Programming Methods & Tools

Dynamic Wizard

The Wizard is a PC based tool suited to programming production runs of identical wheelchairs or modules, or individual highly customised wheelchairs. The Wizard is available from Dynamic Controls in several versions:

OEM	Generally used by the wheelchair manufacturer. Able to program a wide range of parameters
DEALER	Similar in function to above, but with a reduced range of programmable options. This ensures that options that the manufacturer wishes to keep control of cannot be disturbed. Parameters that may cause hazards or require special expertise to be set are not available to adjust.
ENHANCED DEALER	As above but with ability to edit parameters that relate directly to wheelchair accessories (e.g. actuators)
FACTORY	Can only replace Standard or Custom Wheelchair programs. No editing or diagnostics available.

Warning: The Wizard is a very powerful tool and as such requires well trained operators and a disciplined approach to usage and distribution

The DX Wizard Manual should be read and understood before attempting to use it.

Hand Held Programmer (HHP)

The DX Hand Held Programmer (HHP) is the normal programming tool used by dealers, allowing easy adjustment of all commonly adjusted Drive Program parameters.

Warning: The DX HHP is for use only by wheelchair manufacturers, their authorised dealers and support personnel. It is not for use by the wheelchair user.

The DX HHP manual should be read and understood before attempting to use it.

Auto Download – replacing other modules

The DX System has a feature called Auto Download. It is designed to minimise the programming requirements associated with Module servicing by down loading the correct programming to a replacement DX Module.

Auto Download is achieved by DX remotes containing both their own programming and also a backup copy of the programmed data for all other DX Modules in the system. When a module is swapped, or a check sum error found in a module, the DX Remote automatically down loads its backup copy to the module. The Auto down load occurs immediately on power up after the module has been replaced. This applies to all DX modules **except** a DX master remote. I.e. When you replace a Genie Joystick it will need re-programmimg.

Warning!!
When a Genie Joystick is replaced it will perform an Auto Down load to all DX modules. This may result in incorrect and dangerous programming for a particular wheelchair system if the wheelchair program installed in the Genie Joystick is not suitable for that wheelchair system.

Do not attempt to drive or test the DX system before the correct and suitable wheelchair program has been installed in the Genie Joystick using the Wizard.

See page 63 “Downloading the correct DX wizard file”.

After replacing any DX Module, turn the DX System off, then on again, to initiate the Auto down load of the DX Remote backup data. When a Auto Down load has occurred the status LED of the replaced module will flash. Turn the system off and them on again to clear this fault and complete the Auto Down load.

6 Battery Warnings, Diagnostics and Fault Finding

Battery Condition Warnings

A battery warning is shown by the battery gauge flashing its LEDs.

Battery high warning condition

This condition occurs when the battery voltage exceeds 28V, as measured by the PM. The cause can be:

- The wheelchair is still on charge and the batteries are full or faulty
- The batteries are overcharged
- The wheelchair is travelling down a slope and the batteries are full or faulty

The wheelchair will drive during this fault condition which will reset automatically when the battery voltage drops below 28v.

Battery Low warning condition

This condition occurs when the battery voltage drops below 23.3V, when the wheelchair is still.

The cause can be:

- If the battery gauge flashes with orange or green LEDs lit, but the cause is not due to a battery high fault, the battery or battery wiring may be faulty.
- If the battery gauge flashes with just the 1 or 2 red LEDs lit after stopping the chair, the battery may be too small for the wheelchair type, or the battery may be old or damaged.

A battery low warning normally coincides with a low capacity warning.

Low capacity warning condition

When the calculated available battery capacity drops below 10% of full capacity the bottom red LED flashes.

The wheelchair will drive during this fault condition but it shows that the battery is in the reserve capacity range and battery capacity will begin to reduce very

rapidly. The low capacity warning will not stop until the batteries have been recharged adequately.

Diagnostics and Fault Finding

DX System diagnostics can be examined from two platforms : from the Flash Codes signaled with the system status LED on the Genie Joystick (and on the HHP and from the Wizard which can provide more detailed information about the fault.

Flash Code

Any fault condition on the DX system will cause the Genie Joystick's system status LED to flash. Flashing occurs in burst of flashes separated by a two second pause. The number of flashes in each burst is referred to as the Flash Code and indicates the nature of the fault. The title of the Flash Code fault is also displayed by the HHP if connected to the faulty wheelchair.

Faults that affect the safety of the chair will cause the chair to stop while less critical ones will be indicated but allow the chair to continue driving. Some faults will automatically clear when the fault condition is removed, in which case the System Status LED will extinguish. Other faults are latched and must be cleared by turning the DX System off, waiting for two seconds, and then turning it back on again.

DX System Status LED Flash Code	Likely cause of condition and possible action
1	**DX Module Fault (see limp Mode below)**
	Cause An auto download has occurred
	Action ✍ Turn the Genie Joystick off then on again.
	Cause The DX System is not correctly programmed.
	Action ✍ Try reprogramming the DX System
	Cause Connection between DX Modules may be faulty, or there may be an internal fault in a Module.
	Action ✍ Check DXBUS connections and replace if necessary ✍ If the Status LED on another Module is flashing, replace the Module ✍ An expected module may not be present (e.g. the Actuator Module)
2	**DX Accessory Fault**

Cause There is a fault in an accessory device attached to a DX Module (excluding the PM). Examples of faults in accessory devices may be: the clutch is, or has been, disengaged; a light bulb is short or open circuit; an actuator terminal is shorted to Battery +

Action
- ✍ Check all accessory devices connected to your DX System

3 **Left (M1) Motor Fault**

Cause The connection from the PM Left (M1) connector to its associated motor, or the motor itself, is defective. The connection is either open or short circuit.

Action
- ✍ Disconnect the left motor plug and check continuity between the motor pins on M1

4 **Right (M2) Motor Fault**

Cause The connection from the PM Right (M2) connector to its associated motor, or the motor itself, is defective. The connection is either open or short circuit.

Action
- ✍ Disconnect the right motor plug and check continuity between the motor pins on M2

5 **Left (M1) Park Brake Fault**

Cause The M1 plug connection to its associated park brake is either open or short circuit

Action
- ✍ Disconnect the M1 plug and check continuity between the two positronic park brake pins

6 **Right (M2) Park Brake Fault**

Cause The M2 plug connection to its associated park brake is either open or short circuit

Action
- ✍ Disconnect the M2 plug and check continuity between the two positronic park brake pins

7 **Low Battery Fault**

Cause The battery charge is not sufficient to allow safe driving. It has fallen below 17V

Action
- ✍ Check the battery connection and terminals. The battery voltage should be similar when the battery is on charge, and when it isn't.
- ✍ Check that fuses have not blown, or circuit breakers tripped.
- ✍ Replace battery if worn out or if capacity is insufficient for the user's needs.

Note: The wheelchair will behave sluggishly and the Battery Gauge will flash indicating low battery voltage prior to this fault.

8 **Overvoltage Fault**

Cause The battery voltage has exceeded 32V

Action
- ✍ If this fault occurs during battery charging, the battery charger is defective or incorrectly adjusted.
- ✍ Check the battery chargers open circuit voltage is in accordance with the battery manufacturers limits, and is less than 32V

Cause The battery connector is making intermittent contact when the wheelchair is stopped, or travelling down a slope.

Action
- ✍ Check that the battery wiring and terminating is secure.

9 **CANL Fault (see limp mode)**

Cause
1. An invalid voltage has been detected on the DXBUS CANL line.
2. Communication is not possible using the CANL wire.

Action
- ✍ Check the continuity of the DXBUS cable
- ✍ Check for shorts between the DXBUS pins. An open or short circuit on another DX Module can cause this fault.

10 **CANH Fault (see limp mode)**

Cause
1. An invalid voltage has been detected on the DXBUS CANH line.
2. Communication is not possible using the CANH wire, or the CANJ and CANL wires are shorted together.
3. Hazard lights were turned on when the DX system was turned on.
4. The CANH is used to generate a Kill signal by any DX Module which detects and unsafe condition, or by an external device such as an emergency stop switch. The CANH wire is pulled to either Battery + or Battery – and causes the DX System to shut down.

Action
- ✍ Check continuity of the DXBUS cable.
- ✍ Check for shorts between the DXBUS pins. An open or short circuit on another DX Modules can cause this fault.
- ✍ If the hazard lights were already switched on when the DX system was turned on, Flash code 10 and limp Mode may result. To clear this fault, turn the Hazard lights off, then turn the DX System off then on again.
- ✍ If generated by a Kill signal, the cause of the fault is severe.

11 **Stall Timeout Fault**

Cause	The motor current has been at, or close to, current limit for longer than the Stall Timeout parameter value.
Action	✍ Turn the DX System off then on again.

12 **Module Mismatch**

Cause	There is a compatibility problem between DX Modules in the system. The wheelchair will be disabled.
Action	✍ Consult your Dynamic service center.
Cause	The data held by the DX UCM for another DX Module is corrupt or incompatible with that module
Action	✍ Reprogramming the wheelchair system may correct this problem.

Limp Mode

If the DX System detects some faults, it will revert to Limp Mode. This is a reduced speed mode which recognises problems, but allows the wheelchair user to limp home, where the problem can be assessed.

7 Maintenance

1. The Genie Joystick system should be regularly checked for integrity. Loose, damaged or corroded connectors or terminals, or damaged cabling should be reported to your Service Centre and be replaced immediately.

2. The cabling of Genie Joystick System including Switch cables, DXBUS cable, Charger cable and Battery cables, should be regularly checked for integrity. They should never be loose. Cables should be neatly attached to the wheelchair frame and mounts so that no possibility exists for a cable to become snagged on the moving parts of the wheelchair itself, the person sitting in the wheelchair, and/or items external to the wheelchair such as door handles etc.

3. All switches connected to the Genie Joystick should be regularly tested to ensure that they function correctly.

4. During storage and transport of your wheelchair ensure that there is no possibility that Switch 1 can inadvertently by pressed thereby causing the chair to turn on and possible enter a drive state. Always disengage the motor gears and disconnect any external switches.

5. Under no condition should a latching switch be connected to the Genie Joystick. Only connect non-latching switches.

6. The Genie Joystick components and other wheelchair parts should be kept free of dust, dirt and liquids. If necessary wipe with a cloth dampened with warm water or alcohol. **Do not** use solvents or abrasive cleaners.

7. Where any doubt exists, consult your nearest Service Centre or Agent.

8. There are no user-serviceable parts within the Genie Joystick. Do not attempt to open the case.

9. In accordance with the requirements of CE marking of this device and the Company's policy, it is requested that re-occurring faults or defects are reported back to Unique Perspectives Ltd.

Warning !! If the Genie Joystick is damaged in any way, or if internal damage may have occurred (for example by being dropped), have it checked by qualified personnel before operating.

8 Safety and Misuse Warnings

Do not install, maintain or operate this equipment without reading, understanding and following the proper instructions and manuals, otherwise injury or damage may result.

The completed installation must be thoroughly checked, and all programmable options must be correctly adjusted for safe operation prior to use.

A warning must be conveyed to the wheelchair operator that the controller could cause the chair to come to a sudden stop. In situations where this may affect the safety of the user, this will require the fitting and wearing of a seat belt.

Performance adjustments should only be made by professionals of the health care field or persons fully conversant with this process and the driver's capabilities. Incorrect settings could cause injury to the driver, bystanders, damage to the chair and surrounding property.

After the wheelchair has been set up, check to make sure that the wheelchair performs to the specifications entered in the programming procedures. If the wheelchair does not perform to specifications, turn the wheelchair off immediately and re-program. Repeat procedure until the wheelchair performs to the specifications.

Do not operate the DX system if it behaves erratically, or shows abnormal response, heating, smoke or arcing. Turn the system off, disconnect the battery or open the battery overload switch, and consult your service agent.

Do not operate your DX system if the battery is nearly flat as a dangerous situation may result due to a loss of power in an inopportune place.

Ensure the controller is turned off when not in use.

No connector pins should be touched, as contamination or damage due to electrostatic discharge may result. Dummy sockets in unused DXBUS connectors should be left in place unless a new module is added to the system.

Whilst designed to resist water penetration, under certain conditions moisture might enter the Genie Joystick. Any spillage's over the Genie Joystick should be wiped dry without delay. The Genie Joystick may be used outdoors in light drizzle conditions but should be protected from rain.

Most electronic equipment is influenced by Radio Frequency Interference (RFI). Caution should be exercised with regard to the use of portable communications equipment in the area around such equipment. While the manufacturer has

made every effort to ensure that RFI does not cause problems, very strong signals could still cause a problem. If RFI causes erratic behavior, shut the wheelchair off immediately. Leave off while transmission is in progress.

In the event of a fault indicator flashing while driving (battery gauge and/or status LED), the user must ensure that the system is behaving normally. If not, the system must be turned off and a Service Agent called immediately.

Report any malfunctions immediately to your Service Agent.

Know the risks and limitations

Like any mechanical propelled vehicle there are certain risks involved.

The driver is responsible for any damage or injury that may occur to a party as a result of using a powered wheelchair. If the driver cannot assume responsibility due to age or disability then a carer must be present and be able to take over control either using a stop switch or a dual control in case of an emergency. You may wish to consider taking out insurance to cover any claims arising from such an incident.

The most sensitive part of a Genie Joystick system is the joystick element itself. The owner or carer must assume responsibility for regularly checking the integrity of the joystick element and report any problems to the service agent immediately.

9 EC Declaration Of Conformity

Rationale

The Unique Perspectives Ltd. Genie Joystick device is designed for the intended purpose of providing an alternative method of controlling the function of a powered wheelchair. A wheelchair is considered a medical device as defined within Council Directive 93/42/EEC concerning medical devices.

The Genie Joystick is designed for use in combination with a Controls Dynamic DX control system, incorporates a DX UCM and uses a standard DXBUS connector.

The Genie Joystick replaces the standard Controls Dynamic's Joystick.

As the intended purpose is to control a powered wheelchair, and as the Genie Joystick meets the definition of an "Accessory" of a medical device, as defined at Article 1 paragraph 2 b) of the Directive, the Genie Joystick has been CE marked as a medical device in accord with the Directive requirements.

Classification

The Unique Perspectives Ltd. Genie Joystick control system is intended to provide an alternative operating / control system for those who would find it difficult, painful, or impossible, due to an injury or handicap, to operate a standard powered wheelchair control. It is intended to be used in combination with Class I medical devices only.

The Genie Joystick is classified as a Class I device.

Compliance Certificate

The compliance certificate issued by Unique Perspectives Ltd. does not relieve a wheelchair manufacturer from compliance testing their particular wheelchairs.

A manufacturers wheelchair must meet the requirements of the directive before fitting of the Unique Perspectives Ltd. Genie Joystick.

As the Genie Joystick is an 'Accessory' to a medical device re-testing of a manufacturer's wheelchair with the Genie Joystick fitted is not a requirement.

Council Directive 93/42/EEC of 14 June 1993
concerning medical devices.

Unique Perspectives Limited, Ballyclovan Cottage, Ballyline, Callan, Co. Kilkenny, Ireland, declare that:

? the Unique Perspectives Limited Genie Joystick device, as described within the technical file TF.1, conforms to Class I requirements of Council Directive 93/42/EEC of 14 June 1993 concerning medical devices;

? is in conformity with the provisions of that Directive and, where such is the case, with the national standards transposing harmonized standards as noted within the technical file TF 1;

? the requirements of Annex I, Annex VII, Annex IX have been followed for Class I devices and registration requirements of Article 14 have been notified to the Rep. of Ireland Competent Authority;

? the Unique Perspectives Limited Genie Joystick device is an Accessory of a medical device;

? the Declaration covers all Unique Perspectives Limited Genie Joystick devices placed on the market on or after May 2003 and until such time as a renewed conformity declaration is raised.

This declaration is signed on behalf of Unique Perspectives Limited by:

Signed _____

Name _____

Company Position _____

Date May 2003

10 Warranty

All equipment supplied by Unique Perspectives Ltd is warranted by the company to be free from faulty materials or workmanship. If any defect is found within the warranty period of 6 months, the company will repair the equipment, or at its discretion, replace the equipment without charge for materials and labor.

The warranty is subject to the conditions that the equipment:

- Has been correctly installed
- Has been used solely in accordance with this manual.
- Has been properly connected to a DX Power Module in accordance with this manual.
- Has not been subjected to misuse or accident, or been modified or repaired by any person other than someone authorised by Unique Perspectives Ltd.
- Has been used solely for the driving of electrically powered wheelchairs in accordance with the wheelchair manufacturer's recommendations.

11 Sales and Service Information

For Sales and Service advice, or in case of any difficulty, please contact:

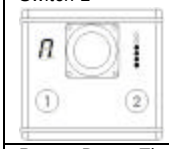
Unique Perspectives Ltd.
Ballyclovan
Callan
Kilkenny
Ireland

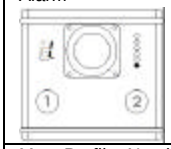
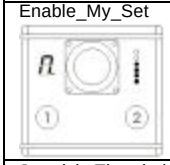
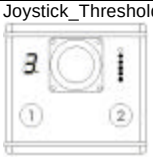
Telephone: +353 56 7725913
Fax: +353 56 7725936

www.click2go.ie
info@click2go.ie

Note: The controller should be clearly labeled with the manufacturer's service agent's telephone number.

12 Genie Joystick Quick Reference Guide

Page 1 Parameters	Value and meaning
Selection_Method	1 = Switch Only 2 = Switch + Joystick 3 = Joystick + Switch 4 = Joystick Only Default: 2 Switch + Joystick
Time_Base	1 = 250ms, 2 = 300ms, 3 = 350ms, 4 = 450ms, (Default) 5 = 600ms, 6 = 800ms, 7 = 1.2sec, 8 = 2 sec
Avoid_Accidental_Hits	1 = No accidental hits are not avoided (default) 2 = Yes, during mode selection. 3 = Yes, during startup 4 = Yes, both
Switch 2 	1 = Right Click 2 = Left Double Click 3 = Left Drag Lock 4 = Mouse Speed 5 = Exit mouse mode Default: 1 Right Click
Power_Down_Timer	N = not required Y = yes, power down the Genie after 20mins of no use. Default: Yes
Exit_Time	1 = 500ms 2 = 1 sec exit time 3 = 2 sec (default) 4 = 3 sec exit time 5 = 4 sec exit time 6 = 5 sec exit time 7 = 6 sec exit time 8 = 7 sec exit time

Page 2 Parameters	Value and meaning
Alarm 	1 = No Alarm 2 = Audible Alarm 3 = Audible Alarm + Text Message Default: 1, no alarm
Max_Profile_Number	Can be set from 1-5. Default: 5
RJM	N = not fitted Y = yes, RJM is fitted Default: not fitted.
Enable_My_Set 	N = No, do not use my set of operation modes Y = yes, use my set of operation modes. Default: No
Joystick_Threshold 	1 = 12.5% 2 = 25% 3 = 50% Default: 25% **Also effects mouse movement sensitivity (see text)** **Does not apply to RJM joystick (fixed at 50%)**
External_Device	1 = Standard connection. 2 = 2 cable connection to a DynaVox communication aid. 3 = 2 cable connection to a GEWA Progress ECU Default: 1

To set a parameter

1. Make sure the Genie Joystick is on.
2. Select program mode by pressing the program switch.
3. Page 1 is automatically selected.
4. The number of times the decimal point flashes indicates what page you are on. To select the next page press switch 2.
5. Select the parameter by clicking switch 1 until the corresponding number of battery LEDs are lit.
6. Change the parameter by holding down switch 1 until the unit beeps and the value displayed in the 7 segment display changes.
7. To exit program mode step through the remaining page(s) by clicking Switch 2 until the decimal point flashes very rapidly.

To reset the parameters to factory values

1. Make sure the Genie Joystick is on.
2. Press and hold the program switch for about 3 seconds until the decimal point flashes rapidly, then release the program switch.
3. All parameters have been reset to their factory (default) values.

Before you do any programming, look at the these tables of parameters and know beforehand what changes you want to make. Be absolutely sure about changing a user's parameter settings. It is a good idea to photocopy this sheet and make note of a user's parameter settings.

To modify the seat function list

1. Enter program mode and select page 3.
2. The first five parameters determine what actuator is controlled by what seat symbol.
3. Change a parameter in the normal way (see opposite text). Each parameter can be set from 1 to 6. Setting a parameter to 6 means that seat symbol will not be used.
4. See text for further explanation.

To create your own set of operation modes

5. Enter program mode and select page 4.
6. The symbol in the 7 segment display indicates the first mode.
7. Use short clicks of Switch 1 to select the mode you want for this step.
8. When it is displayed press the primary switch for a long time, until the Genie beeps. The chosen mode for this step is stored and a new step begins.
9. Repeat from step 3 until you have entered all the steps of your set. Note that you can not exceed 6 steps.
10. When you have finished entering your set press and release switch 2. The steps are stored in the ClickToGo and normal operation resumes.
11. To enable your set you must re-enter program mode and change the parameter 'Enable_Set' on page 2 from 'N' to 'Y'.

IMPROVEMENTS TO GENIE JOYSTICK

16/12/03

From unit **number 31** the following functionality has been added:

1. It is now possible to program Button 2 to be either

   Right Click,
   Left Double Click, (new)
   Left Drag Lock, (new)
   Mouse Speed (new)
   Go back to Drive mode. (new)

2. When set to Mouse Speed Button 2 selects 1 of 3 mouse speeds. Previously the Genie had just one speed (slow speed).

   Speed 1 is a slow speed.
   Speed 2 is a combination of slow and fast speed whereby the mouse starts off slow and after 1 ½ seconds increases to fast speed.
   Speed 3 is a fast speed.

   It is possible to adjust the speed setting for the fast speed using the Windows control panel.
   It is <u>not</u> possible to adjust the speed setting for the slow speed using the Windows control panel (as before).
   The mouse speed is stored when the unit is turned off.

3. In external mode, Button 2 is used to go back to Drive Mode (before it switched the Genie off)

7/6/05

From unit **number 51** the following functionality has been added: ***REVB***

1. It is now possible to operate the Genie Joystick and RJM at the same time in all modes except driving. It is still necessary to set the RJM parameter to Yes in the Genie as well as enabling the RJM in the DX Wizard program.

2. Mouse movements have been improved and it is now possible to select between Fine, Standard and Course sensitivities. This is achieved when setting the joystick threshold parameter – see text. Requires mouse emulators with serial numbers greater than 40.

21/11/05

From unit **number 59** the following functionality has been added: ***REVC***

1. It is now possible edit the seat function list so that a seat function symbol can be associated with a particular actuator. Furthermore it is possible to disable a seat function symbol from the list. This means that if a chair is fitted with only 2 actuators for example, then only the 2 appropriate seat function symbols will be displayed when seat function mode is enabled.
2. To facilitate the above a forth program page has been added to the parameter list. To aid programming the selected program page is now indicated by the number of times the decimal point flashes.
3. Seat function mode has also been improved in that left/right deflections will not select the next/previous actuator unless the joystick is neutral. This prevents inadvertent selections of the next/previous actuator.
4. Mouse speed has been increased and the default set to fast.
5. It is now possible to interface to the GEWA Progress ECU so that operation is more intuitive. The Progress must be set for 2 switch manual row/column scanning. When external access is selected downward deflections select the row. A right hand deflection selects the cell in that row. Finally another downward deflection activates the chosen cell. External access can be exited at anytime by pressing switch 1.
6. A USB interface cable is now available. This allows the Genie to be connected to the USB port of an “on-chair” computer or communication device. The cable connects from the Genie switch output port to the USB port of the external device. The cable has electronics built in which “fool” the computer or communication device into thinking that

standard USB mouse is connected. When external access is selected the joystick on the Genie is used to move the mouse pointer and button 1 makes left click selections. Note that this interface is in addition to the wireless mouse already built into the Genie. This means that the user can have wireless control over a desktop computer, and also control (through the cable) of an “on-chair” computer.

28/2/06

From unit **number 61** the following functionality has been added: ***REVD***

1. It is now possible to fit a bluetooth module internally within the Genie. This allows the Genie to control a SmartPhone. A new menu item “t” appears in the menu. When selected the Genie is controlling the SmartPhone. The SmartPhone must be equipped with BlueTooth and be running Windows Mobile 2003. See the “ClickToPhone” user manual for further details.
2. It is now possible to generate an alarm. By holding Switch 1 for twice the Exit Time an audible and Text message alarm are generated.